

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENTS.

VOL. XIV.

NEW YORK, JUNE 25, 1859.

NO. 42.

NEW PROSPECTUS OF THE SCIENTIFIC AMERICAN. — ENLARGEMENT.

Volume I., Number 1—New Series.

The Publishers of the SCIENTIFIC AMERICAN respectfully announce to their readers and the public generally, that, on the first day of July next (1859), their journal will be enlarged and otherwise greatly improved; and at that time will be commenced "Volume I., No. 1, New Series," which will afford a more suitable opportunity for the commencement of new subscriptions than is likely to occur again for many years.

The form of the journal will be somewhat changed from what it now is, so as to render it better adapted for binding and preservation and instead of eight pages in each number as now, there will be sixteen and in a completed yearly volume the number of pages will be doubled to 323, or 416 more than now.

The SCIENTIFIC AMERICAN is published at a price which places it within the reach of all; and as a work of reference for the Workshop, Manufactory, Farm and Household, no other journal exceeds or even equals it in the value and utility of its information. Its practical recipes alone oft-times repay the subscription price ten-fold. Inventors will find it, as heretofore, the mirror of the Patent Office, and the reliable record of every claim issued weekly by the Office, the list being officially reported for its columns.

With the enlargement of the SCIENTIFIC AMERICAN, we shall be enabled to widen the sphere of our operations, omitting none of the features which now characterize it, but adding many new ones, which will render the work more valuable to all classes of the community than it has heretofore, among which is the devoting of space to a Price Current, and a column or two to the Metal and Lumber markets, and such other branches of trade as may be interesting and useful.

The increased outlay to carry out our design of enlargement will amount to eight thousand dollars a year on our present edition; and in view of this we appeal to our readers and friends to take hold and aid in extending our circulation. Think of getting, at our most liberal club rates, a yearly volume containing about 600 original engravings and 323 pages of useful reading matter, for less than three cents a week! Who can afford to be without it at even ten times this sum?

Two Volumes will be issued each year; but there will be NO CHANGE IN THE TERMS OF SUBSCRIPTION, as the two yearly volumes together will be Two Dollars a Year, or One Dollar for Six Months.

CLUB RATES.

Five Copies, for Six Months.....	\$4
Ten Copies, for Six Months.....	\$8
Ten Copies, for Twelve Months.....	\$15
Fifteen Copies, for Twelve Months.....	\$22
Twenty Copies, for Twelve Months.....	\$28

Southern, Western and Canadian money or Post-office stamps, taken at par for subscriptions. Canadian subscribers will please to remit twenty-six cents extra on each year's subscription, to pre-pay postage.

For all clubs of Twenty and over, the yearly subscription is only \$1.40. Names can be sent in at different times and from different Post-offices. Specimen copies will be sent gratis to any part of the country.

When you order the SCIENTIFIC AMERICAN, be careful to give the name of the Post-office, County, and State to which you wish the paper sent. And when you change your residence, and desire your paper changed accordingly, state the name of the Post-office where you have been receiving it, and that where you wish it sent in future.

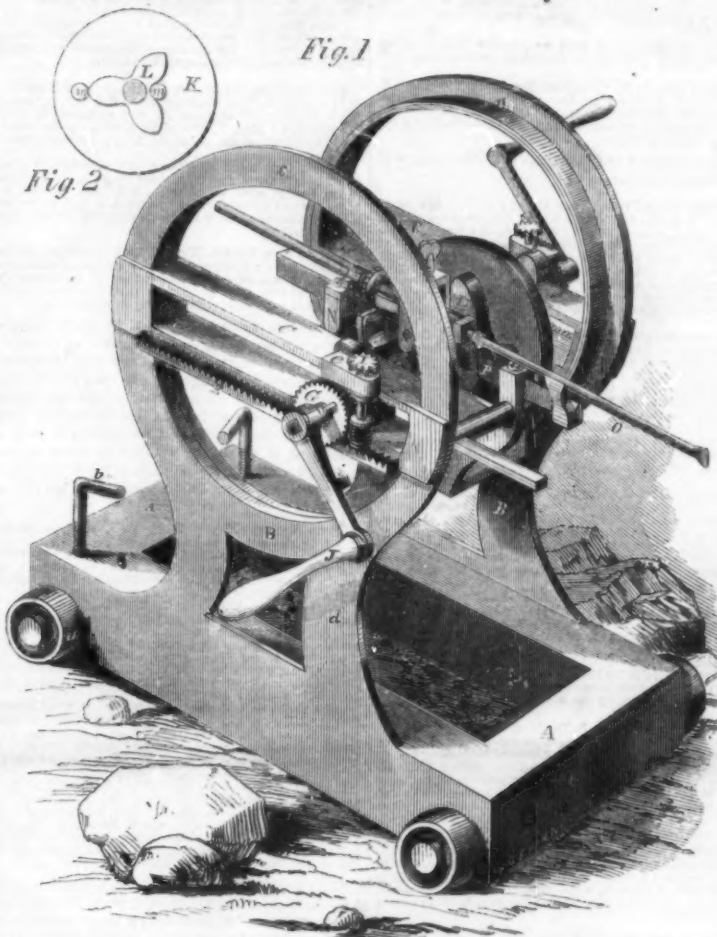
MUNN & CO., Publishers and Patent Agents,
No. 37 Park-row, New York.

Beautiful Electrotpe Table Tops.

A most beautiful invention, connected with ornamental tables, has lately been exhibited in London. It consists in securing, with varnish, mother-of-pearl, precious stones, curious shells, &c., on a plate of copper intended for a table top. These are arranged in an artistic manner to represent figures, leaving spaces of clean copper between them and then submitting it to an electrotpe bath, where a deposit of copper is made to fill up the spaces between the stones, &c., and thus hold them embedded in the metal. After this the plate is submitted to a silver electroplating bath and the copper covered with silver, thus forming a curious and exquisite table cover ready to be placed on a pedestal.

We have to thank Capt. A. A. Humphreys of the Topographical Engineers, for his able report of recent explorations and surveys, and the excellent maps which have been constructed under his supervision.

WHITE'S ROCK AND COAL DRILL.



A really good drill is a great desideratum for mining purposes, and has long been wanted; one so arranged that it could be worked by hand or power as the size of the bore or the facilities of the mine or quarry enabled to be done. The subject of our engraving is such a machine, and is the invention of Lyman White, of Davenport, Iowa, the patent being granted this week.

Fig. 1 shows a perspective view of the whole machine and Fig. 2 an isolated view of the working cam. A is a frame which is mounted on small rollers, a, that can be adjusted by screw rods, b. To each side of the frame, A, is an upright supporting piece, B, formed of an annular top piece, c, and two supports, d. Within each piece, c, a bar, C, is placed, and secured in the desired position by screws. C are slotted longitudinally nearly their whole length, and a bearing, e, is fitted so that it can slide in the slot. D is a shaft which rotates in e. On the outer edge of C a rack, E, is placed, in which the teeth of a wheel fit, that is connected with the worm wheel, G, both of which turn loosely on the shaft, D. A screw, H, gears with G, and on the top of H is a small toothed wheel, I, that is moved one tooth every time the crank, J, makes one revolution by the pin, i, passing between the teeth of I. By this means the drill is fed to its work. On the shaft, D, a wheel or disk, K, is placed, and it is provided on its face with a cam, L. On D there is suspended a box which carries a carriage, N O P, on which are placed the rollers, m m, that, passing both sides the cam, L, cause

the carriage to be moved back and forth by the cams. The drill, O, is secured in a frame in this carriage that is provided with a ratchet wheel at its end, so that the drill may be rotated as it is at work. The operation is very simple. By turning the cranks, J, the drill receives a rapid percussive and return motion, giving three blows to one rotation of the crank, and at the same time the drill is fed to its work and itself turned to cut the whole round. It can be advantageously used by farmers to remove rocks from the farm, and is so simple that any mechanic can construct it. A two-inch bore and under can be done by hand, and it is only above that size that animal or steam power will be required. The editor of the Iowa State Democrat has seen it in operation, and speaks very highly of its performances.

Any further information can be obtained by addressing the inventor as above.

Flaxen Ringlets.

Poets have often sung in raptures of blue-eyed, laughing flaxen-haired girls, but George Speight, of London, a thoroughly practical man, understands things better than those dreaming rhymsters who make sonnets to their sweethearts' ringlets, for he makes flaxen ringlets for those sweethearts. He has just taken out a patent for making plaits and curls for headresses and other head ornaments and employs Russian or American hemp dyed to the exact shade desired, and glossed up with aromatic grease, and curled to adorn the head of some happy fair one either with flowing auburn or raven locks as may be desired.

When it is taken into consideration that long brown hair for making ladies' artificial curls costs from \$10 to \$12 per pound, Mr. Speight may be considered a sort of benefactor to all those individuals who are deficient in natural cranial ornamentation, although we think his invention will rather *spite* the girls in Normandy, who cultivate their hair expressly for our wigmakers.

Peddlers in human hair traverse France, and attend the country fairs, to which the girls flock who have long tresses for sale. These are offered for examination, and a bargain struck for each fleece according to its length, color, and texture—the dark auburn being the most prized. When this is done, down sits the devoted fair one on a stool, and a large pair of ruthless scissors soon completes the operation, and the price being paid, the shorn damsel goes on her way rejoicing. Beautiful long tresses which a fashionable lady would not part with for thousands of dollars are parted with by the French rustic maidens without a sigh and for very small sums, little dreaming that in a short time afterwards, they may be attracting a score of admirers in Broadway. Such has been the way of the world heretofore, but Mr. G. Speight intends to have a different order of things hereafter—if he can.

New Gold Discovery.

The Melbourne (Australia) *Argus* states that great excitement has been created at the celebrated Bendigo Diggings by the discovery that a conglomerate metal, very common, but which has been hitherto disregarded, will yield not less than 150 oz. of pure gold to the ton, with a very large per centage of zinc. The analysis is as follows:—Zinc, about 45 per cent; iron, about 20 per cent; sulphur, about 15 per cent; arsenic, about 10 per cent; other extraneous substances, about 9 per cent; gold, about 1 per cent: total, 100—giving a result of 1 oz. of pure gold out of every 100 oz. of the conglomerate. It states that "this discovery has opened up a fresh mine of incalculable wealth." From the nature of the alloy it will not be an easy process to reclaim the gold, and it will not pay the expenses in Australia. If this conglomerate were imported at a small cost to New York, it could be smelted and refined with profit.

MOLDS OF ENGRAVINGS.—Gutta-percha can be dissolved in olive oil by the agency of heat, and it then becomes a plastic mass, which is kneaded with warm water to wash it, and the moisture then pressed out. It is now laid on the face of an engraved plate, which is designed and copied by the electrotpe process, and heat is applied to the under surface. The composition is thus melted and fills up every line of the engraving; it is then suffered to cool and when it becomes dry and hard, it is easily removed and forms a mold containing a perfect copy of the engraving. The face of this mold is now dusted with pure plumbago, and placed in an electrotpe trough, when a coat of copper is deposited upon it. In a very simple manner multiplied copies of engravings can thus be obtained.

PROSPECTUS.—We hope the friends of the SCIENTIFIC AMERICAN will send without delay for our prospectus, with a view to getting subscribers on our new volume; and from those who have already received them we hope to soon hear a good account.



Issued from the United States Patent Office
FOR THE WEEK ENDING JUNE 14 1890.

[Reported officially for the Scientific American.]

* Circulars giving full particulars of the mode of applying for patents, size of model required, and much other information, useful to inventors, may be had gratis by addressing MUNN & CO., Publishers of the SCIENTIFIC AMERICAN, New York.

WASHING MACHINE—Pleasant Armstrong, of Camden, Ala.: I claim, first, The arrangement of the complete stationary rods of the convex swing frame, on two semi-circular lines of different diameters, so that the rollers on the smallest semi-circle shall stand above and opposite the spaces between the rollers on the largest semi-circle, in combination with the arrangement of the stationary rods of the concave, substantially as and for the purposes set forth.

Second, The arrangement of two auxiliary treadle standards with the main standards of the tub, in the manner described and for the purposes set forth.

MACHINE FOR PRINTING ADDRESSSES—John A. Barrington, of Fredericktown, Ohio: I claim, first, A cylinder constructed with grooved ribs, or their equivalents, for holding forms of type, presenting them at a proper point, to perform the office of printing, and afterwards allowing them to be delivered from the cylinder, substantially as described.

Second, In combination with the cylinder, B, I claim the ribs, k, arranged upon an endless chain in such manner as to receive the forms of type, as described.

Third, Securing the forms, l, within the ribs, k, in such manner as to prevent said forms from being printed, by means of the follower, j, n, catch, j', and spring, j'', substantially as described.

Fourth, Adjusting the forms of type for printing and delivering them from the cylinder after printing by means of a reciprocating bar, operating substantially as described, or its equivalent in effect.

Fifth, The inclined feed-wheel, W, constructed with adjustable spring conveyors, v, v', and operating substantially as described.

Sixth, Regulating and adjusting the speed of the endless apron, T, by means of the inclined disk, s, friction wheel, t, set screws, v, v', and crank screw, V, all constructed, arranged and operating substantially as described for the purposes set forth.

GAGE FOR MEASURING THE PRESSURE OF FLUID—Victor Beaumont, of New York City: I claim, first, So arranging respectively dome-shaped elastic disks of one or more spring chambers in pressure gages, so that the pressure of steam or other fluid within said chamber is indicated by the motion of the disk or plate, which presents its convexity to the pressure.

Second, The manner substantially as described of guiding the free end of a spring, consisting of one or more chambers, expanding by pressure from within, in order to prevent it from vibrating in any direction but that of its axis.

Third, In pressure gages with a hollow spring chamber mechanism, I claim partially filling the space inside of chamber with a solid substance, or substances, in the manner and for the purposes set forth.

INSTRUMENT FOR MEASURING THE STRENGTH OF WATON SPRINGS—J. M. Bellum, of New York City: I claim an apparatus having a measuring spring affixed thereto, together with an index, substantially as described, and an attachment for attaching the hair spring to be measured, combined and arranged in the manner and for the purposes set forth, and constituting a ready means of determining the exact force of said hair springs, as specified.

CHURN—P. S. Devlan, of Reading, Pa.: I claim the employment in a churn, in which the cream is acted upon by a blast only of a float, G, substantially as and for the purposes set forth.

ONE SEPARATOR—Wm. O. Bourne, of New York City: I claim, first, A sieve-bed, in which the opening or openings for the passage of the air or water through it are so contracted as to enforce an uniform action of the air or water through the entire surface of the sieve-bed, which may be made of sheet metal, or of any flexible material, either separately or in combination, or of their equivalent, as set forth.

Second, The application of a vibrating and shaking motion to a sieve-bed, in combination with a blast of current of air, or water, in the manner and for the purposes set forth.

Third, The described adjustable blades for agitating the substance on the sieve-bed, and for regulating the discharge of the refuse substances over the front edge of the table, as described.

Fourth, The separation of metals, or other heavy substances, from ore, or other materials, when upon a sieve-bed, by the gravitation of the lighter substances towards and over the front edge of the sieve-bed, when acted upon by a current of air, or water through a sieve-bed, in the manner and for the purposes set forth.

MARINE HAND PROPELLER—E. C. Brackett, of Newton Corner, Mass.: I claim the arrangement and combination of the adjustable car, B, arms, D, oscillating shaft, E, hinged blades, F, rods, G, arms, K, P, rod, N, and lever, H, as and for the purposes set forth and described.

[This device is more especially intended to propel boats of from ten to twenty tons, and to replace the single enormous car now in use. A number of propellers or blades are hung to a pivoted arm which is fixed to the end of a vertical post attached to the side of the boat, and they are operated by means of an arm, connecting rod, and lever so as to give to them a swinging or vibrating motion, at the same time the blades are so hinged as to adapt themselves to the impact of the water in an inclined position similar to the act of rowing or sculling.]

VALVE—Wm. Bramwell, of New York City: I claim the sliding nut, k, actuated by the screw, l, in combination with the hinged valve, m, and toggle links, n, substantially as specified.

REEFING SAILS—Joseph Francis Brouard, of Havre de Grace, France. Patented in France Feb. 2, 1885: I claim, first, Supporting the rolling yard, F (Fig. 12, sheet No. 2) between its points of suspension, by the hook, N, the said hook being constructed and operated as described for the purpose of staying the rolling yard and holding it in position, when the sail attached to it is acted upon by the wind, as set forth.

Second, The construction of the boom iron, shown in Fig. 3, sheet No. 2, for the purpose of placing the boom in position, to prevent the chafing of the sail, as described.

PROJECTILE FOR KILLING WHALES—Robert Brown, of New London, Conn.: I claim, the flukes on the shank of the bomb, the line attached thereto, the gooseneck indentation in the barrel of the bomb, for the line as stated.

SELF-PRIMING LOCKS—J. S. Butterfield and Simon Marshall, of Philadelphia, Pa.: We claim, first, The extension, g, on the carrier, c, in the manner and for the purpose as substantially set forth.

Second, We claim a pin, l, connecting each primer from the roll, with the ring of the hammer, in the manner and for the purpose as substantially set forth.

Third, We claim the adjustable center projection, h, h, and thumbcrew, q, q, arranged and operated in the manner and for the purpose as substantially set forth.

METHOD OF ATTACHING THE CAPPING OF FEWER POSTS—R. S. Cadwell, of Andover, Ohio: I claim the projection, or tongue, A, formed on the top of the post, in connection with the mortise, l, in the capping, D, C, attaching the said capping to the post, and securing it by a baton, as described.

MODE OF FASTENING LIGHTERS TO SIGNBOARDS, &c.—Thos. Champion and Thos. Motley, of Washington, D. C.: We claim the placing or casting on the back of letters projections with solid cast or wrought shanks therefrom.

We claim holes in said projections to fasten by screws, nails, or rivets, substantially as described.

FLY-TRAP—L. S. Clough, of Brooklyn, N. Y., and S. R. Burrell, of New York City: We claim the combination of the stationary cone, revolving catcher and start and receptacle, when constructed as described and for the purpose specified.

[An illustration and description of this invention will be found on another page.]

SUGAR CANE PRESS—Thos. Crane, of Port Atkinson, Wis.: I claim the combination of the pressure rollers, B, C, with the main bearing wheel, A, of a frame, which is so proportioned and supported that it can be rotated around a pivot post, but this I only claim when a fluid receiving vessel, a, a, conducting tube, l, a, annular channel, and a delivery spout, k, are combined with the said frame, substantially in the manner and for the purpose represented and described.

MANUFACTURING PAPER—S. S. Crocker and Geo. E. Marshall, of Lawrence, Mass.: We claim, first, The combination of internally heated drying cylinders, a, with a steam box, or boxes, arranged for the purpose of continuously first thoroughly drying paper, and then superficially moistening it, by the direct application of steam prior to the operation of calendering.

Second, The combination of a steam box or boxes, so arranged as to moisten paper superficially by the steam therein contained, with rolls which calender by pressure as described.

LOOM—Chas. Crowley, of Ellington, Conn.: I claim first, The combination of the series of vibrating tuft formers, K, K', and the vibrating reed, G, H, arranged and operating substantially as above described.

Second, The combination of the weights, 3 and 4, the knotted cord and slotted arm, I, for the purpose of controlling the set-off of the tufting yarn beam, as described.

DRAIN TILE MACHINES—Jones Daines, of Birmingham, Mich.: I claim, first, The bar, G, and books, D, in combination with the crossbar, E, when used for the purpose of opening the lid, G, automatically, as described.

Second, I claim the bar, B, combined with the frames M, in the manner mentioned, with the levers, L, for cutting off the tile by the returning of the plunger.

HORSE BRACKET—T. R. Davis, of Lexington, Mass.: I claim the improved mode of fastening and confining it to the foot, by having the points of attachment bear directly upon the shoe, so as not to injure the ankle or fetlock, by galling on the hoof by compression, and also the machinery by which the bracket is adjusted to the size of the foot, and held more firmly and securely than by any other mode of attachment now known.

MILK CAN—E. R. Dennison, of Middletown, N. Y.: I claim, as an improved article of manufacture, a milk can, having its cover, C, hinged to a flange, F, and provided with a plate, h, stopper, k, and having the ring, hoop, B, attached to the body of the can, B, all as shown and described.

PLOWS—Eli Moore, of Slabtown, S. C.: I claim the arrangement of the beam, A, brace, B, clevis, C, foot, D, stock, E, and ring, F, all as shown and described, constructed as described for the purposes specified.

ATTACHMENTS TO LOCOMOTIVE ENGINES FOR REMOVING OBSTACLES FROM THE TRACK—C. H. Eisenbrandt, of Baltimore, Md.: I claim the double suspension lifting platform, composed of the parts, c, e, 2, d, d, e, e, f, g, h, j, k, k', l, l', m, n, the yielding network or flexible fender guard, or its equivalent, l, l', in combination, combined and arranged substantially in the manner set forth and described.

OPERATING SWITCHES ON RAILROADS—Chas. Foster, of Kidder, N. J.: I claim the mode of operating switches by means of movable cams, i, i, or their equivalents, on the car, acting on a cam, A, or its equivalent, connected by means of levers with the switch rail, c, substantially as described.

MACHINE FOR DRESSING MILLSTONES—H. B. Gill, of Ogdon, N. Y.: I claim the combination and arrangement of the pivoted segmental arm, O, and slide, N, with the striking lever, G, and cam, M, or its equivalent, substantially in the manner and for the purpose set forth.

MACHINES FOR MAKING HAY—T. I. Goff, of Warren, R. I.: I claim the combination of the gathering rake, D, and revolving rake, E, when arranged for joint operation, substantially as and for the purpose set forth.

[A gathering and revolving rake fitted in a frame mounted on wheels are used in this invention, by which the grass as it is left by the mowing machine may be expeditiously turned for the purpose of being cured or made into hay. The object of this invention is to expedite the process of making hay, so that the work may be speedily done, and the old injunction of "make your hay while the sun shines" be better fulfilled.]

VENTILATORS—G. D. Greenleaf, of Chateaugay, N. Y.: I claim, in combination with the cylinder, A, bell-shaped casing, G, and plates, B, D, the cup, J, and register, I, for the purpose specified.

[By allowing the impure air of a room to escape into the pipe of a stove by which a chamber is heated, a good ventilation is obtained, and one so simple that it should be universally adopted.]

ROTARY ENGINES—Dexter D. Hardy, of Cincinnati, Ohio: I claim, first, The arrangement of the rings, e', e', e', operating in the described combination with the pipes, a, to pack the revolving shaft, C, in its connection with the stationary cylinder, A, by the use of steam or water pressure as explained.

Second, The combination and arrangement of the revolving shaft, C, containing the receiving and discharge ports, J, K, with the stationary cylinder, A, B, and valves, E, E, substantially as described.

HORSE RAKES—Herty Hersh, of Lancaster, Pa.: I claim the arrangement and combination of the S-shaped teeth, H, look, I, revolving axle, B, and clearers, M, as described and for the purposes set forth.

OMNIBUS REGISTER—H. C. Howells, of New York City, and J. C. Howells, of Madison, Wis.: We claim, first, The employment of a yielding platform to determine the value of the entry or fare, and in combination, with doors, or equivalent devices, to secure the registration of persons standing upon it, previous to their ingress or egress, substantially as specified and set forth.

Second, We also claim the employment and use of the circular or segmental doors, or equivalent devices, having within the area of their action a yielding platform, operating substantially as set forth and specified.

Third, We claim, in combination with the yielding platform, G, an operative lever, N, and vertical rod, M, and puppet, Q, or their equivalents, substantially as set forth and for the purpose specified.

Fourth, We claim the pin, or bolt, a, in combination with the arm, O, attached to the vertical rod, M, or their equivalents, for communicating motion to the registering levers, S and T, by the action of the jointed arm, P, substantially as specified and set forth.

Fifth, We also claim the registering levers, S and T, operated as set forth, or their equivalents, and in combination with the registering ratchet wheels, U and V, and the spring pawls, m, m, together with the double dial, X, for registering the whole or half entries or fares, substantially as set forth and specified.

Sixth, We also claim the stationary brushes, and the arrangement and combination of levers and rods, or their equivalents, for operating the doors and steps, substantially as set forth and described.

SEWING MACHINES—Solon P. Hubbell, of Unadilla, N. Y.: I claim the combination of the bar, I, having teeth, W, angular notches, X, and clearers, V, with hopper, D, its pins, Y, and slide blocks, O, the whole being constructed and arranged as and for the purpose set forth.

I also claim, in combination with the hopper, D, pins, Y, slide blocks, O, and regulating plate, E, the reciprocating bar, F, with its clearers, R, R', and stirrers, S; these several devices being constructed and arranged for operation conjointly in the manner and for the purpose set forth.

TUNING KEY-BOARD—Richard Humphreys, of Jonesborough, Tenn.: I claim as a new article of manufacture, the described compound tuning reeds, necessary to represent the corresponding keys in the general scale of musical notations, substantially as described.

[The nature of this invention is in combining on a rectangular board, any desired number of octaves of properly tuned reeds, similar to those used in melodeons, to represent a corresponding number of octaves of the natural scale of musical notation (or white keys of a piano-forte), and another set of correctly tuned reeds to represent the semi-tones of the octaves, in such a manner as to enable the musician, by comparing the tones of his instrument with those of the key-board, to detect and correct the least departure from the correct tone.]

WOOD SCREWS—Henry L. Kendall, of Providence, R. I.: I claim a wood screw, having a thread of a ratchet-tooth shape in combination with wide spaces between the convolutions thereof, on a stem cylindrical, or nearly so, and on a point of any suitable form, substantially as set forth.

I also claim making the threaded point of a wood screw in such a manner that the thread thereof (except the terminal convolution) shall be of the same or nearly the same depth on its upper and lower sides, to give the screw a firmer hold of the wood, especially on its first entrance, than it would have if the threads on the point were made to gradually less depth toward the apex, substantially as set forth.

I also claim so forming the thread of a wood screw that it shall be of the same depth on the upper and under side, on the point and on the stem, (except the terminal convolution of the point, which is contracted rapidly in depth and width,) substantially as set forth.

BREECH-LOADING FIRE-ARM—Daniel Leavitt, of Chicopee, Mass.: I claim effecting the locking and unlocking of the upward-opening breech, and the starting of the same from its seat to open it, by means of a detached lever having a locking-dog, f', to enter a notch in the breech, and a toe, g, to act against the bottom of the breech, substantially as described.

[This invention consists in the employment, in combination with a breech-loading fire-arm, of what the inventor calls a "combination packing," consisting of a piece of felt fitting snugly into the rear portion of the barrel, and a piece of stout paper, pasteboard, or other hard, inflexible material of a form and size to pass easily through the barrel, the felt being placed next the breech of the fire-arm, and the paper or hard material between the felt and the charge, that by the force of the explosion it may be driven back against the felt and so caused to compress the same against the breech and force it close against the joint, and so prevent the escape of gases and keep the joint perfectly clean. This "combination packing" is applicable to breech-loading fire-arms of various constructions.]

SEWING MACHINES—James S. McCurdy, of Brooklyn, N. Y.: I claim, first, The combination of a reciprocating needle with a pair of loops, or their equivalent, the combination as a whole operating in such manner that each successive needle-loop is encircled by a tight coil of the thread of the preceding loop, substantially as described.

Second, The combination and arrangement of two loops, substantially such as described, with a driver operating substantially in the manner and for the purpose set forth.

Third, Constructing and operating one of the loops in such manner that a supplementary movement is imparted to it while the other is at rest, for the purpose of tightening the stitch.

MUSICAL INSTRUMENTS—H. T. Merrill, of Galena, Ill.: I claim the gamut board, C, applied above and behind the keys, in combination with a sliding name-board, B, or its equivalent, substantially as specified.

[The object of this invention is to facilitate the learning of the location of the notes and their indicative letters upon the base and treble staves, and at the same time the association of the location of every note upon the staves with its respective key on the key-board of a piano-forte, melodeon, organ, or other musical instrument having a key-board of similar character. To effect this a vertically sliding name-board, or board occupying the usual position of the name-board of a piano-forte or similarly keyed instrument, extending the whole length of the key-board, a fixed or "staff-board," having represented on it the base and treble staves, and the indicative letters of the notes arranged above their respective keys, are employed, the "staff-board" being so arranged behind the name-board as to be exposed by sliding up and concealed by sliding down the last-mentioned board.]

CULTIVATORS—Azal Smith, of Westfield, Ohio: I claim the adjusting brace-plate, C, C, frame, B, B, and cutters, D, D, when arranged as described, and in combination with the adjustable mold-board.

LAMPS—Rufus S. Merrill, of Lynd, Mass.: I claim, in coal oil burners of otherwise ordinary construction, the combination with a flat wick tube, of the removable director, constructed as described, with inclined side walls and vertical ends, the latter being corrugated or grooved to fit the ends of the wick tube, as a means of securing the director to the wick tube, and for directing or conveying the heated vapors mixed with atmospheric air, to the sides of the flame, substantially in the manner and for the purposes set forth.

HANGING CARRIAGE BODIES—Leman C. Miner, of Hartford, Conn.: I claim, first, The application of the double-jointed shackle, H, to the front axle, whereby the vertical position of the spring and axle is sustained, and the fifth wheel and appendages dispensed with.

Second, The back axle braces with double joints, B, B, to admit a free and easy vertical motion of the springs and supporting the axle in its upright position, substantially in the manner as described.

VULCANIZING CAOUTCHOUC—Dubois D. Patmelee, of New York City: I claim the preparation and use of the ingredients described, with bromine, whether combined or not with sulphur, substantially as described and for the purposes set forth.

STEAM PRESSURE REGULATOR—A. P. Pitkin, of Hartford, Conn.: I claim the forming a connection with the reduced pressure pipe or chamber, A, and diaphragm spring or piston, B, or their equivalents, for the purpose of opening and closing a passage, C, between the high and reduced pressure pipes or chambers, A and D, as and for the purpose described.

I also claim the combination of passage, C, piston or valve, E, rod, L, lever, F, diaphragm spring or piston, B, and safety-valve, H, arranged to operate in relation to each other as and for the purpose described.

DEVICES FOR SECURING THE CLEVIS TO PLOWS—R. B. Pringle, of Coventry, N. Y.: I claim the arrangement of the pin, C, feather or rib, c, space, e, a clevis, B, beam, A, and groove, a, as described, for the purposes set forth.

KEYS, ETC., FOR PIANO FORTES—Joseph Hoffacker and Joseph Richards, of New York City: We claim, first, The construction of the key-board, by substituting, instead of the usual keys, knobs connected with the main levers, substantially as described.

Second, The pivoted rod, a, in combination with the main levers, m, substantially as described.

Third, The construction of the damper, O, substantially as set forth.

Fourth, The construction of the trigger, n, and its action on the damper, O, substantially as described.

CLIP FOR CARRIAGE THILLS—Daniel J. Riker, of Harlem, N. Y.: I claim extending the plate, c, of the carriage clip, in the form of a spring, to the eye of the shafts, and causing said spring to operate on the aforesaid eye, in the direction of the pull, to keep the parts of the bolt and eye in contact, for the purposes and as described.

SPEEDER AND STRETCHER FLYERS—John N. Sawtall, of Chicopee, Mass.: I claim the new article of manufacture described for a flyer for spinning frames, when constructed essentially in the manner and for the purposes set forth.

METHOD OF VENTILATING CORN HOUSES—Noah Selfs, of Melmore, Ohio: I claim the arrangement of the openings, O and O', with the wire grating, in combination with the secondary perforated floor, d, lathing, e, and ventilator, f, substantially as and for the purposes set forth.

SAW-SET—Alex. Shoemaker, of Carey, Ohio, assignor to James G. Hunt, of Reading, Ohio: I claim the adjustable arm, O, with the flange and adjusting screw in combination with the spring trip-hammer.

I also claim the spring, I, and the trip-hammer, in combination with the adjusting frame, L, and rollers, N, N, and adjusting screws; these several devices, I claim, when arranged substantially as set forth for the purpose described.

CONSTRUCTING SHEET-METAL COFFINS—Isaac C. Shuler, of Amsterdam, N. Y.: I claim, first, The arrangement of strengthening the lower part of a sheet-metal coffin, by folding over and soldering together, consecutively in several thicknesses, the surplus metal of the sides and ends of a sheet-metal tray, c, forming a rim all round the outside circumference of the base, and fastening the walls of the coffin firmly together. I claim also the arrangement of fastening to the under-side of this tray, or bottom of the coffin, the frames, b, b, for the purpose of stiffening it.

Second, The arrangement of placing on the inside of a sheet-metal coffin a metal tray, d, with scroled edges, which rests on a flange formed by turning in the walls of the coffin all round their lower edges, and fastening this tray firmly thereto and also to the walls, for the purpose of strengthening the structure. I also claim the bars, b, for strengthening this tray.

Third, The arrangement of scroled, or folding outwardly, and soldering, consecutively, each fold of the surplus edges of the walls of a sheet-metal coffin, forming a rim all around the upper edge of the walls, for the purpose of strengthening and securing the same in straight lines for jointing, substantially as described.

Fourth, The arrangement of forming on the inside of the upper edges of the walls of a sheet-metal coffin, a scroled rim on the piece, c, for the purpose of more firmly supporting the air-tight cover, and also for the purpose of securing the cover by screws as well as by solder when desirable.

Fifth, The arrangement of fastening on the outside of a sheet-metal coffin between the stiffening ribs of the upper and lower edges of the walls, the ends or pillars, o, at the corners and along the sides and ends in any required number, according to the size of the coffin, for the purpose of stiffening the sheet-metal, in order that the structure may sustain a heavy weight.

Sixth, The arrangement of scroled, or folding together the surplus edges of the air-tight cover of a sheet-metal coffin, and beading the same, which, on being turned under, serves to fit the groove, l, as well as to stiffen the cover. Also the stiffening bars, b, substantially as described.

Seventh, The arrangement of pressing a recess in the sheet-metal all round the windows of a sheet-metal coffin for receiving and supporting the glass. I also claim the arrangement of supporting the glass, by a flange formed by the extension of a second inside sheet of the double cover.

Eighth, The arrangement of fastening the glass in these recesses, by means of metal sashes fastened to the coffin-lid, as described.

Ninth, I claim the flanges formed on the outer edges of the sheet-metal blinds, m, m, for the purpose of closing around the metal sash, and securing the glass from the intrusion of dust and from other annoyances.

Tenth, I am aware that I have claimed the bi-section of a hinged cover for the lid of a sheet-metal coffin, according to the breaks in the side-walls; I claim the cover, j, as applicable to a coffin with straight side-walls, in two hinged sections, as described.

SEEDING MACHINES—Andrew Simmons, of Nora, Ill.: I claim the arrangement of the boxes, T, in relation to the distributor, C, plates, N and O, and in combination therewith the hollow drill-tooth, F, the several parts being so constructed as to form a broad-cast seed plant and drill.

MACHINE FOR BINDING GRAIN IN BUNDLES—James D. Osborn, of Constantine, Mich.: I claim a binding knot composed of three loops passed through each other, when said passing of the loops through each other is effected by machinery driven or moved from any of the moving parts of a harvesting machine, and whether accomplished by the means herein stated, or by their substantial equivalents.

THE CONSTRUCTION OF SLED RUNNERS—John M. Spooner, of Springfield, Mass.: I claim making both of the runners and the bearers of a sled or sleigh, or other similar vehicle, of one continuous piece of rod of steel or other metal, substantially as set forth.

SEEDING MACHINES—Edos Stinson, of Plainfield, Vt.: I claim the arrangement and combination of the shaft, F, box, E, shaft, M, arm, O, and box, N, as and for the purpose shown and described.

[This invention consists in a combination and arrangement of a broadcast and drill and hill-distributing device whereby two different kinds of seed may be sowed simultaneously—one broadcast, the other in hills and drills, and either allowed to be used separately when desired.]

BREACH-LOADING FIRE-ARMS—Wm. Mont. Storm, of New York City: I claim such an arrangement of the links as described, and their connection with the breech-piece and lever, that they shall jam forward and firmly hold the former against the rear of the bore of the barrel after it has ceased its motion transversely to the latter, and, *vice versa*, release the breech-piece (in opening the breech) before its movement commences.

Second, I claim the perforated breech-piece, in the manner and for the purpose described.

Third, I claim the arrangement and combination of the sliding collar, G, rods, a, reach, E, sliding bolster, F, pendula, I, links, J, and runners, B, as shown and described.

[Those sleighs which have two sets of runners are improved by this invention, which consists in a peculiar manner of connecting the front and back runners, and also in a peculiar way of connecting them to their bolsters, whereby the runners are allowed to conform to the inequalities of the surface of the ground over which they pass. The sleigh allows them to turn readily, and prevents them being injured by ordinary fair usage.]

STOP COCK—Isaac C. Tate, of New London, Conn.: I claim the application of the spring, A, in the manner substantially as set forth and described, and for the purpose described.

WHIFFLETREE HOOKS—Lewis C. Terry, of Chenango, N. Y.: I claim a hook, pivoted or hinged to its supporting eye, which is cut away or flattened on its back, in the manner described, so that the point of the said hook, being in contact, or nearly so, with its side holding eye, will securely confine a link, a ring, a staple, a trace, or similar object, in all positions, excepting when turned back upon the said flattened or concave part of the eye, substantially as set forth in my description.

I also claim the right, in addition to the above, to so construct the hook and eye that the hook shall have but one motion, *viz.*, a horizontal motion directly around the circle formed by the said eye, so that the said hook shall not drop or work from side to side; and the exclusive right to use the same in either or both the forms above mentioned and described, for all purposes for which they may or can be used, when constructed substantially as set forth.

CULTIVATORS—Joseph Thirlwell, of Galeburg, Ill.: I claim the arrangement of the frame, A, the iron bow, B, the hinge bow, C, the tongue braces, D, D, and lifting chain, F, when constructed and used in combination for the purposes set forth.

SEEDING MACHINES—Franklin Veal, of Hallettsville, Tex.: I claim, first, The arrangement of the windlass, K, the hand lever, H, and the lever, N, in combination with the smoothing roller, L, the hopper, F, and the harrow, M, and in such relation to the driver's seat, I, that they can be operated from the same, substantially as and for the purpose described.

Second, The combination of the fan cylinder, F', with the hopper, substantially as and for the purpose described.

[The hopper box in this invention is arranged with a harrow and a smoothing roller in such a way that all of them, or each for itself, can be operated from the driver's seat, the hopper box being hinged and provided with a lever, whereby the box can be brought in such a position that the flap board or valve is not opened by the cam or that the same is opened for the purpose of discharging seed, and the harrow is suspended from a rope or chain in such a manner that the same can be lifted clear from the ground by means of a hand lever that can be reached from the driver's seat, and the smoothing roller is attached in such a way that it can be raised from or lowered to the ground by means of a windlass that is operated by a handle from the driver's seat.]

RAILROAD CAR COUPLINGS—David Warren, of Gettysburg, Pa.: I claim the arrangement of the adjustable plate, a, as constructed with the pin, b, arm, A, rock-shaft, B, and guards, R, when the same are operated and used, substantially in the manner and for the purpose set forth.

ROCK DRILLS—Lyman White, of Davenport, Iowa: I claim, first, Placing the bearings, e, of the shaft, D, to which the box, M, and drill carriage, N, are attached in bar, C, which are fitted in annular parts, c, of the supports, B, and arranged substantially as shown, so as to admit of the facile adjustment of the drill, P, to any angle or position required.

Second, The employment or use of the racks, E, on the bars, C, in connection with the wheels, F, G, on the shaft, D, the screws, H, attached to the sliding bearings, e, by the bars, f, the wheels, I, on the upper ends of the screws, H, and the pins, o, on the cranks, J, the whole being arranged substantially as shown, to feed the drill to its work.

[An engraving and description of this invention will be found on the first page.]

CAR COUPLINGS—Gilbert Yates, of West Dresden, N. Y.: I claim the combination of the chain, H, H, clasp, J, J, with the bent and lifting rods, B, B, grooved parts, C, C, and chains, H, arranged in relation to each other, substantially in the manner and for the purposes set forth.

GRAIN-HULING MACHINE—Wm. Zimmerman, of Quincy, Ill.: I claim the conduits arranged to receive the grain secured or operated upon by the first or each revolving scouter, when operated on a horizontal shaft, and conduct it to the center or central part of the second or next revolving scouter, and so on in succession through the whole series of scouters, until it passes out of the machine.

GRAIN BINS—Daniel D. Badger and W. S. Sampson, assignors to Daniel D. Badger, of New York City: We claim the arrangement and combination of the metallic bins, A, in the manner and for the purposes substantially as shown and described.

[The buildings in which grain is usually stored are divided into a number of chambers called bins, the grain being carried by elevators to the top and drawn from the bottom. The partitions which constitute the chambers have hitherto been constructed of wood, which has been liable to harbor insects and was not at all fire-proof. This invention consists in making the bins circular and of iron, which will be perfectly fire-proof. Damp grain can be dried in them and they will

not be affected by any atmospheric changes. The spaces between the cylinders can either be used as small bins or as flues for ventilation or heating as desired. A mammoth grain warehouse, constructed on this principle, is being erected in Brooklyn, N. Y.]

MACHINES FOR SHAPING THE BACKS OF BOOKS—John E. Coffin, (assignor to A. G. Gorlish,) of Portland, Me.: I claim, first, The arrangement of the sliding-holding jaws and the reciprocating roller carriage, substantially as described.

Second, Combining the toggle mechanism which operates the clamping jaws and the screw which operates the roller carriage with a cam and pulley, or its equivalent, on the same shaft, in such manner as to make a machine for shaping the backs of books, which is perfectly continuous and automatic in its operation, and to and from which the books only require to be introduced and removed by the attendant at the proper stage in its operation, substantially as described.

[This invention consists in a novel arrangement of a pair of clamping jaws and a roller carriage for the purpose of holding the book and shaping its back. It also consists in certain mechanism for operating the clamping jaws, whereby they may be adjusted for books of various thicknesses and yet always present them properly to the action of the shaping rollers. And it further consists in so combining the mechanism which operates the jaws and that which operates the roller carriage as to make a machine for shaping the backs of books that is perfectly automatic in its operations.]

MACHINE FOR CUTTING INDIA-RUBBER INTO THREADS—Joseph W. Cox, of Malden, Mass., assignor to Horace H. Day, of New York City: I claim, first, In combination with the concave rotary cutter, substantially as described, the employment of a tube placed in the concavity thereof, substantially as described, for the discharge of a jet of water against the cutting edge, as described.

Second, I also claim the carriage, with its divided clamps and follower, substantially as described, in combination with a rotary cutter, substantially as described, or any equivalent cutter, for the purpose set forth.

Third, And finally, I claim, in combination with the carriage clamp and follower, the mechanism, or any equivalent thereof, for operating the follower, substantially as described.

MACHINE FOR BORING BLIND STYLES—Danl. Dunham, (assignor to D. D. Sweet, James Bromley and E. W. French,) of Pawtucket, R. I.: I claim, first, The rack, J, or its equivalent, arranged in combination with the sliding carriage, F, and with the dog, o, as described.

Second, The lever, M, arranged with the nose, p, in such relation to the treadle, D, that by its action the dog, o, is operated, as specified.

[A rack, consisting of a series of converging slats, is arranged in such relation to the sliding carriage on which the blind-styles, or other similar articles, are fastened for the purpose of laying out the spaces for holes or mortices, the length of these spaces can be regulated by moving the rack in or out and that the carriage can be adjusted by a gate to different spaces, and the sliding carriage is operated automatically.]

TRIP-HAMMERS—Bennet Hotchkiss, (assignor to himself and F. Collins,) of New Haven, Conn.: I claim my improved means of operating the hammer, that is, by an air spring cylinder, substantially as described, or its equivalent, applied to the piston and connected with mechanism, by which a rapid reciprocating rectilinear motion may be imparted to such cylinder, essentially in manner and so as to operate the piston and hammer as specified.

I also claim, in combination with the piston trip-hammer, the air spring cylinder and the mechanism for imparting to the latter reciprocating rectilinear motions, as described, mechanism substantially as specified, for varying the attitude of the path of movement of the cylinder under circumstances as explained, such mechanism as above described, consisting of an eccentric bearing shaft, H, applied in boxes, I, I, and to the crank-shaft, G, of the cylinder, B, substantially as specified.

COMPOSITION FOR CEMENTING IRON—John Johnson, of East Brooklyn, N. Y., assignor to Chas. D. Archibald, of London, England: I claim the combination and use of lime, bone dust and charcoal, in the manner and for the purposes substantially described.

SPINNING TOPS—Francis Millard, (assignor to H. Homan, W. L. Thomas and D. D. Hardy,) of Cincinnati, Ohio: I claim a combined gyroscope and spinning top, constructed and operating substantially in the manner set forth.

SEEDING MACHINES—Daniel Nichols, (assignor to Chas. Rumley and Edward Rumley,) of Omaha, Ill.: I claim the combination and arrangement of hinged bars, E, H, slotted arc, I, driving-wheel, J, and auxiliary seed-hopper, F, when the same are arranged and operated in the manner and for the purposes specified.

[A plow and seed-planter are so combined in this invention that the seed-planter can be made adjustable according to the depth to which the seed is to be planted, at the same time adapting itself to the irregularities of the surface of the ground and the motions of the plow in turning over the soil.]

ROLLING METAL FOR JEWELRY—John S. Palmer, (assignor to himself and Chas. S. Capron,) of Providence, R. I.: I claim the employment of a tapering die, A, in combination with the pressing rollers, substantially as and for the purpose specified.

[The object of this invention is to combine the stamping and the rolling in one operation, and the invention consists in placing the stock from which a certain article of jewelry is to be manufactured on a die, the face of which is provided with a groove corresponding in shape to the form to be given to the article of jewelry, and in passing the die together with the stock through rollers so that the stock, by the action of the rollers, is pressed into the groove and raised and stretched out according to the inequalities of the bottom of the groove, so that plates for rings and similar articles which are flat on one side but of uniform thickness throughout, may be rolled out by passing the requisite stocks on suitable dies through a pair of pressing rollers.]

ATTACHMENT FOR ALARM CLOCKS—E. T. Quimby, assignor to himself and Newton Brooks, of New Ipswich, N. H.: I claim, first, The wheel, A, or its equivalent, having a series of projections, a, which, or some of which, can be covered up or removed, and operating in combination with the hammer, B, substantially as and for the purpose described.

Second, The arrangement of the slides, F, to operate in combination with the wheel, A, and with the hammer, B, substantially in the manner and for the purpose specified.

[This is a very simple and excellent alarm clock.]

CORN HARVESTERS—Geo. W. Richardson and James W. White, of Grayville, Ill., assignors to themselves and Geo. M. Weed, of White County, Ill.: We claim the combination of the gathering wheels, L, L, terete rollers, H, H, stripping plates, M, and guide plates, N, as set forth.

And we also claim the combination of the fender or guide plates, N, meeting the points of the rollers, H, with the terete rollers and stripping plates, as set forth.

WATER-WHEEL—Robt. Ross, (assignor to himself and Geo. J. Starnard,) of St. Albans, Vt.: I claim the plate or gate, F, placed within the water passage, a, of the wheel provided with the vertical projections, f, at the issues, e, and attached to the rod, E, within the shaft, C, of the wheel, substantially as and for the purpose set forth.

[This invention relates to an improvement in that class of horizontal water-wheels in which the water passes through curved passages in the wheel, and which are generally known as reaction wheels. The invention consists in having a gate fitted in the water passages of the wheel, arranged so that the dimensions of the passages may be varied by an ordinary regulator or governor and the speed of the wheel be rendered uniform.]

RAILROAD CARS—Henry Webb, (assignor to S. L. Wilder,) of Cincinnati, Ohio: I claim the angular rail heads above described, when constructed so as to be convertible and present a new surface after the first surface has been worn out, in the manner and for the purposes specified.

MEANS FOR ACTUATING MOVABLE PARTS OF FIRE-ARMS—Thos. Bailey, of New Orleans, La. Patented in England Dec. 3, 1888; I claim combining a toothed wheel or piston on a traveling center and working between guides, with a pair of racks, one of which is stationary and the other movable, having connected to it the part of the fire-arm to be moved, the toothed wheel changing its position or traveling in the same place with the guides, substantially as set forth.

RE-INSURE
COTTON GINS—David G. Olmstead, of Vicksburg, Miss., assignor to R. A. L. McCurdy, of Sabine Parish, La. Patented June 28, 1887; Reissued July 15, 1889; Again re-issued June 14, 1889; I claim the revolving screen, cylinder or shaft situated in the hopper or roll-box, so that the roll moves around it, when constructed and arranged substantially in the manner described, whether as a single or double device, so as to perform any or all of the functions, as specified.

I also claim discharging the hulls and trash from the roll-box through the sides of the cotton gin, as set forth.

FASTENING CENTER BITS—Able W. Streeter, of Shelburne Falls, Mass. Patented January 23, 1888; Reissued June 14, 1889; I claim fastening a bit in its stock by means of a projection on one and a suitable recess for it on the other, when combined with mechanical pressure or friction that will hold the projection and recess together, substantially as described.

ADDITIONAL IMPROVEMENT.

THE CONSTRUCTION OF CHAIRS, SOFAS, &c.—Charles Robinson, of Cambridgeport, Mass. Patented March 9, 1887; I claim, in addition to the original improvement, the spring plate, D, arranged and operating in combination with the supporting blocks, B, B, substantially as specified.

DESIGNS.

STOVE PLATES—S. W. Gibbs, of Albany, N. Y., assignor to Abbott & Lawrence, of Philadelphia, Pa.

STOVE PLATES—S. W. Gibbs, of Albany, N. Y., assignor to Abbott & Lawrence, of Philadelphia, Pa.

TOPS AND BASES OF SHEET-IRON STOVES—S. W. Gibbs, (assignor to Rathbone & Co.) of Albany, N. Y.

ARMS OF SEWING MACHINES—James S. McCurdy, of Brooklyn, N. Y., assignor to John M. Myers, of New York City.

INVENTIONS EXAMINED at the Patent Office, and advice given as to the patentability of inventions, before the expense of an application is incurred. This service is carefully performed by Editors of this Journal, through their Branch Office at Washington, for the small fee of \$5. A sketch and description of the invention only are wanted to enable them to make the examination. Address MUNN & COMPANY, No. 37 Park-row, New York.

A Fragrant Breath.

There are various ways of scenting the breath the simplest is by chewingorris root, or any other fragrant substance. Tooth-powders, lozenges, and tincture dentifrices, however, are preferable in many respects, as they can be easily used, and yet leave the mouth free for "chaffing." The following is a good domestic recipe for a highly scented tincture to perfume the breath. Take either white wine, such as sherry, or any alcoholic spirit, a quarter of a pint; broken cloves and grated nutmeg, of each one drachm (one eighth of an ounce); cinnamon a quarter of an ounce; caraway seeds, bruised, a quarter of an ounce; place all these dry substances into the wine, or spirit, in a half-pint bottle, and let them stand together for several days, agitating them every night and morning to accelerate tincturation, for at least a week. Then strain off the tincture through linen to get it bright. Then add about ten drops of otto of lavender, and if you can afford it, five to ten drops of otto of rose also. Although the recipe is complete without it, yet this latter substance greatly improves the formula. A few drops of this tincture put on to a lump of sugar and masticated will scent the breath. It may also be used with advantage on the tooth-brush, in lieu of tooth-powder, or, mixed with water, it can be used as a gargle. Either way will secure "a breath of flowers."

S. PIESSE.

Treating Scalds and Burns.

Dr. South, a London physician, in a recent work on domestic practice, gives the following for the treatment of scalds and burns—misfortunes to which children are too often subject: "The object in treating scalds and burns is to keep up, for a time, the great heat or high temperature to which the injured part has been

raised by the scalding or burning, and to lower this by degrees to the natural heat of the body. . . . If the blistered skin be unbroken, the burns may be covered with dry or wet applications, whichever may be handiest or most preferred; but if the skin be broken, wet applications, if they can be got at once, are best, otherwise dry ones must be used; as it is off the utmost importance to protect the exposed sensitive true skin that lies beneath the scarf-skin, of which the blister consists, from the air, which renders it excessively painful. The best and readiest dry materials are flour, or cotton, or cotton-wadding; the wet are spirits of turpentine, spirits of wine or good brandy, lime-water and oil, lime-water and milk, milk alone; or bread and milk poultice; and all these wet applications must be made of sufficient warmth to feel comfortable to the finger, but not too hot."

An American Engineer in the Austrian Service.

It is well known that Austria has of late years been strengthening her fortifications in her Italian possessions. One of the most important has been constructed under the superintendence of an American, H. E. Towle, who graduated at the Lawrence Scientific School, connected with Harvard University. Some three years ago he went to Austria, for the purpose of erecting extensive fortifications at Pola on the Adriatic, about ninety miles south of Trieste. The works were nearly completed at the last accounts, and he hoped soon to be able to return to his country, though he expressed some fears that the French would blockade Pola, and thus his return be prevented.—*New York Express.*

Some Things to be Read.

It is hoped that, out of respect to the publishers, every reader of the SCIENTIFIC AMERICAN will, before he lays down this number, carefully read the following brief notices:

BACK NUMBERS are always supplied to our subscribers free of charge, when we have them; but as we are out of many numbers, when parties order and do not receive the missing numbers called for, they may conclude that we cannot supply them. It cannot, of course, be expected that we will write to all those who order, informing them of our inability to furnish the numbers desired.

BOUND VOLUMES (XIV.), complete, will be ready in a few days; price, \$2 75.

BINDING.—Subscribers wishing to have their loose numbers bound can send them to our office for that purpose; charge for binding, 75 cents.

AN ILLUSTRATED TITLE-PAGE, printed on a separate sheet, has been provided to accompany this number. We have issued enough to supply all, and we hope that those of our readers who receive their paper from the news agents will be particular to ask for the title-page. It is useful for all those who may wish to bind their volumes.

TO INVENTORS & PATENTEES.—A pamphlet of advice, "How to secure Letters Patent for New Inventions," prepared by MUNN & Co., is furnished without charge. It is useful to all who contemplate making applications for Letters Patent.

THE CONTENTS OF OUR NEXT NUMBER—the first of the new series—we are confident will not disappoint the expectations of our readers. It will contain several interesting illustrations, and a choice variety of reading matter.

DESTROYING VINE INSECTS.—At this period of the year, grape vines in cities and large villages are infested with worms, which feed voraciously on the leaves and do considerable injury. The most convenient way to destroy them is by the use of tobacco juice and sulphur. A pound of tobacco steeped for an hour in ten gallons of water, in which two ounces of sulphur have been stirred, makes a solution of sufficient strength, to be sprinkled with a watering-pot over the entire vine. Two or three sprinklings may be required before the pests are all destroyed.

New Inventions.

Clough & Burrell's Fly Trap.

We always thought that a lighthouse was intended either to warn the mariner of danger or show some friendly channel; but these inventors call their trap a lighthouse trap, and instead of warning flies of their danger, it, with spider-like guile, allures them to their death.



Our illustration shows one of these traps. The clockwork is in the base, from which rises the central column, which is covered with sand and on which the bait (molasses and sugar) is to be spread with a sponge. A rotating spindle passes through the center of this and carries a platform on the top, from one side of which the catcher projects downwards, close to, but not in contact with the sanded cone. On the top of this platform a cage, containing water in its base, is placed, into which the flies are attracted by the light, when started from their enjoyment of the sweets of life by the catcher. When the spring is wound up and the trap baited, the catcher and cage commence revolving around the sanded cone, and the flies are caught, made prisoners, and finally find a watery grave.

The inventors are I. S. Clough and Saml. R. Burrell, of New York, and the patent was issued this week. Any information or traps may be obtained from I. S. Clough, No. 231 Pearl street, New York.

New Farm Gate.

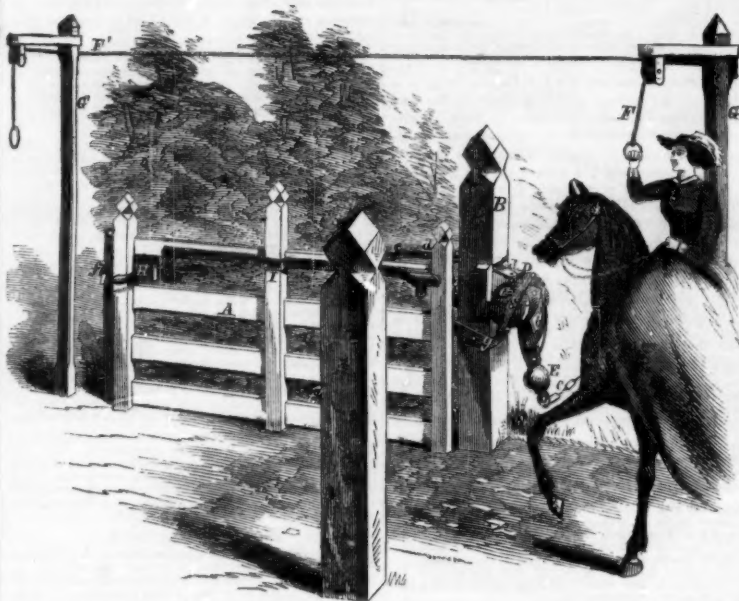
The extreme simplicity of this gate will recommend it to all who wish to have the carriage way to their house, or the entrance to a field or drive, closed with a gate that can be opened by a person on horseback or in a conveyance without dismounting.

The gate, A, is swung as usual from a post, B, to which there is attached a framing that carries a grooved drum, C, and a double lever, a. On the end of the drum is a ratchet-wheel, D, in the teeth of which a pawl, b, is kept by a spring, the ratchet being connected to a weighted lever, E, the tendency of which is to pull the pawl over the teeth without moving, C; but when the weighted lever is elevated by either cord, F or F', that depend from the posts, G G', and are connected by a chain, c, to E, then the ratchet or grooved drum are rotated a quarter of a revolution, or the distance of one groove. In the grooves of C a pin works which is rigidly connected to a lever, d, that has its fulcrum inside B, and that is connected by another lever, e, and a sliding joint to the gate, the fulcrum of e being on the end of a link that is hinged to B. The latch, H, is kept in the catches, f and f', according as open or shut, by a small spring, and the inside end of the latch is connected to the double lever, I, that is operated by one arm of a striking it and so elevating the latch when in one position, and by the other end of

a striking and depressing the double bent lever, g, that operates a pin on the other side of I, when the gate is in the position shown. As the grooves in C run in opposite directions, it follows that, on pulling the cord on one side the gate to open it, when the other cord

is pulled it must close the gate, and vice versa. This gate is very durable; there is no sunk mechanism to get out of order or become clogged with dirt or frozen up, and by removing the pin which connects the lever, e, to the gate, a common farm gate is made.

BOGGS' FARM GATE.



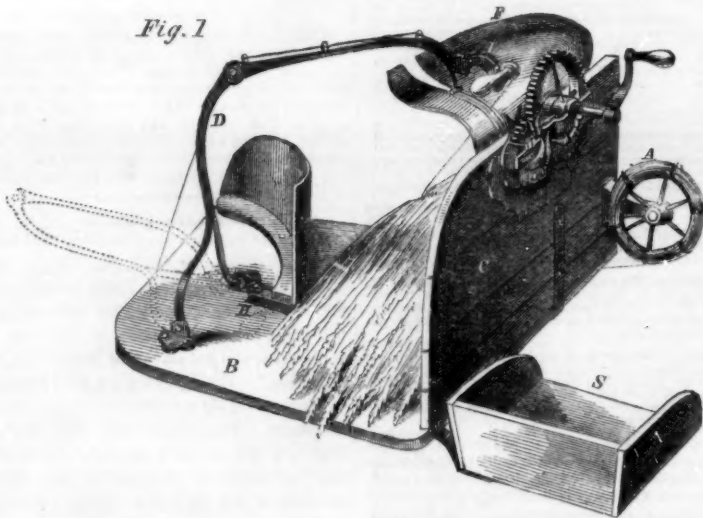
There is nothing strange in its appearance to frighten cattle or horses. It is very easily constructed, and is cheap.

The inventor is W. T. Boggs, of Cincinnati,

Ohio, and the patent is dated Oct. 19, 1858. He will be happy to furnish any further information concerning the invention upon being addressed as above.

SHERWOOD'S GRAIN BINDER.

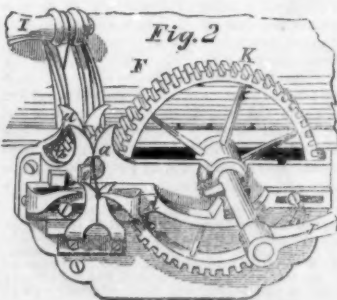
Fig. 1



This binder, the invention of Allen Sherwood, of Auburn, N. Y., can be attached to the platform of any reaper, and it requires only the attendance of one man.

A reel of wire, A, is attached to the side of the harvester, and along the bottom of the supplemental or binding platform, B, a groove, H, is made, through which the wire is passed to the jointed arm, D, along eyelets in which the wire returns. We may as well describe the operation, by which the machine will be fully appreciated. The operator sits on the seat, S, Fig. 1, and taking the handle, I, of the jointed arm, D, in his left hand, he passes it over the shield, F, on the top of the side, B, and down to the position indicated by dotted lines on the platform. The grain is then raked on the platform, B, and the binder, by elevating the handle, I, passes the wire completely around the sheaf and brings the end to the device seen in Fig. 2, which is placed on the outside of the slide, C, of the device. The wire passes between the two jaws, a, and between two eccentric cog-wheels, b, which are rotated by a wheel, K, operated by means of a handle, J, which the operator keeps in his right hand. These

wheels, b, twist the two ends of the wire to secure it round the sheaf, and a stop, c, on the shaft of K, catching against another one a sliding frame, d, that carries a knife, e, causes the wire to be cut off, and the sheaf

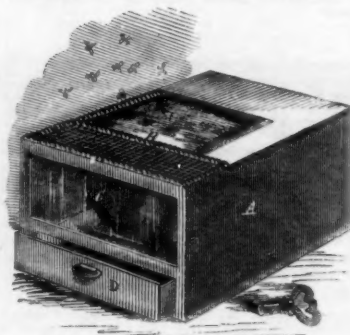


drops away bound and fastened, and the operator is prepared to perform the same operation again, which takes less time than we have taken to describe it. The whole complete weighs only about forty pounds, and it is constructed so as to be sold very cheap. The wire must be flexible iron wire and will not cost much, and can be used for other pur-

poses when the grain is threshed. The sheaves can be easily unwired by a peculiar pull with a gloved hand, although they are not likely to come unfastened by any of the exigencies of transportation from the field to the threshing. Any one can operate it after a little practice, and there is no doubt that it does its work quickly and well.

It is a subject of two patents, Jan. 26 and Sept. 14, 1858, and has been assigned by the inventor to E. P. Senter & Co., of Auburn, N. Y., who will be happy to furnish any further information.

Automatic Fly and Mosquito Trap.



We must confess that it is very cruel to take life and cut short the ephemeral existence of even flies and mosquitoes, but the fact is, they are much too friendly, and have such an uncomfortable way of showing their attachment to our persons, that we willingly seize hold of any means to exterminate these diminutive blood-suckers. Our illustration shows a trap which not only catches but confounds and kills the insects who may happen to be attracted by its seeming innocence.

It consists of a box, A, in one end of which there is a common clock movement, which gives motion to the endless band, B. This band is moistened with a few drops of rum, or molasses and vinegar, and set in motion, when the flies attracted on to it are carried down into the body of the box, where a corrugated or winged drum knocks them off into the bright tin drawer, D, that is half full of water, and the flies, being first stunned by the blow of the roller or drum and further confused by the intense light of the polished tin and the humming noise of the clockwork, quickly lose the power of resistance and drown in the water. When mosquitoes are desired to be caught in the night time to keep the room clear enough to give us rest, a light must be placed opposite the glass front, C, in order that the light may be reflected by the polished tin and so attract the mosquitoes.

It is the invention of S. W. Smith and H. Bigelow, and any further particulars may be obtained from the former by addressing him at 534 Broadway, New York. The patent is dated Feb. 15, 1859.

Inquest on Patents.

A discussion took place a few days ago, in the New York Academy of medicine, on the question whether the Academy should pass an opinion on surgical instruments and apparatus which have been patented. Dr. McNulty contended that it was contrary to the spirit of the Code of Ethics of the National Association for physicians to obtain patents, and consequently that they should not act upon other people's patents. This sentiment met with much opposition, and the general opinion was that surgical appliances should come under a different rule from nostrums; the former being usually invented, at least in part, by mechanics, who could not do without the patent. A resolution by Dr. McNulty, to the effect that the consideration of no patented article should be entertained by the Academy, was lost.

We have received from the author, F. W. Evans, a very interesting account of the theology, sociology, and history of the Shakers together with a life of Ann Lee.

Scientific American.

NEW YORK, JUNE 25, 1859.

Special Notice.

All subscribers to the SCIENTIFIC AMERICAN who have paid the full subscription price (two dollars) for the complete volume which has heretofore terminated in September, are informed that by remitting \$1.60 more, their subscriptions will be continued for one year on the New Series commencing July 1st.

CLUBS of subscribers who have paid up to September, and wish to renew their subscriptions or form new clubs at that time, can do so at the club rates, deducting 30 cents each from all the present subscribers and complying to our advertised rates on new ones; for instance a club of 10 subscribers who have paid \$15 for one year's subscription up to September, may have their subscriptions continued till the end of Vol. II., New Series, or one year from July 1, 1859, by remitting \$12.

The Past, the Present and the Future.

In accordance with the announcement (made in No. 35) of our intention to enlarge the SCIENTIFIC AMERICAN, and commence a new series on the 1st of July next, the present number terminates Vol. XIV.; and with the next issue we shall appear before our readers in a new form, with new type, and thus introduce "Volume I., Number 1, Enlarged Series"—a sixteen-page paper instead of an eight.

The SCIENTIFIC AMERICAN will next week enter upon its fifteenth year; and we hope we shall be able to show to our friends and the public that it still has a vigorous existence, and that it enters upon a new career with the intention of proving itself still more worthy of the confidence and support of a generous and enlightened reading public.

We know from a long experience that our journal has a host of friends everywhere; and the hearty response which has been made towards it, in reference to the proposed scheme of enlargement, assures us that we have not taken this step in vain. We desire here to repeat—what we have often had occasion to do—our warmest thanks for the generous support and confidence which has been given to us during the thirteen and a half years in which we have had control of this journal. Without multiplying words on this point we will proceed at once to give a few details concerning the enlargement and alteration in the form of the SCIENTIFIC AMERICAN. The necessity for the change has long been apparent, not only to ourselves but also to our readers, and the difficulty against which we had to contend was principally one of prime cost; and, as our custom is, we sat down to count the expense and to consider how we could best accomplish our objects. To double the present size of the journal without resorting to the expedient of using a very inferior quality of paper is out of the question, as no sane man would undertake to publish a journal twice the size of this and use equally as good paper for \$2 a year, with our present liberal clubbing rates. We thought of a number of plans whereby we could serve up a more acceptable weekly entertainment to our readers, such as a double sheet monthly or bi-monthly, or a loose supplemental sheet weekly; but a little experience in both these particulars convinced us that neither plan would be satisfactory. We therefore resolved, as the last resource, to change the form of the journal by using a larger sized sheet but folding it into a sixteen-page paper instead of an eight; and thus slightly reducing the size of the pages. The size of the sheet upon which each number of the new volume is to be printed is 28 inches by 40, or just one-half larger than

the sheet now in the hands of the reader; and by a better and more economical arrangement of the space we shall be able to present to our readers almost a double quantity of useful reading matter, and at the same time afford them a more compact, and, we believe, a more convenient volume for binding and preservation. In reference to the amount of reading matter we would further explain, to render this point clear, that, in the present issue, the letter-press covers a total available space of 872 inches, while in the new form the total available space will be 1,536.

It must be apparent to all that this improvement will open to us a wider field for the expression of thought and the results of investigation than we have hitherto enjoyed; and while we do not intend to depart from our legitimate sphere, wherein we have so long labored and wherein there is yet much to be accomplished, we hope at the same time to develop more fully the varied operations connected with invention and the industrial arts and sciences.

By the pen and the aid of the graphic pencil we shall delineate, week by week, the actual progress of invention, discovery and manufactures; and, as heretofore, the SCIENTIFIC AMERICAN will be the only reliable organ of all those ingenious men who, by their continual discoveries in various fields, are ever advancing the world in the knowledge and application of the arts and sciences; and thus the beneficial influence of this journal will be made to extend to all classes of society.

We shall publish the proceedings of scientific associations and bodies so far as their deliberations bear upon the interests of the inventor, the mechanic and the manufacturer; also reports of patent trials, and biographical notices of scientific men and inventors—a feature which we shall endeavor to render useful and attractive. As examples of this kind we refer to our recent notices of Humboldt, Lardner, Olmsted, Watt, Robertson, and Commissioner Bishop.

As heretofore, we shall pay particular attention to the department devoted to giving valuable information to our correspondents, which we shall endeavor to make still more varied and interesting. We shall also vigilantly watch the operations going on in our markets in metal, lumber, and such other departments as may be deemed useful to our readers.

With the foregoing hints and glimpses of our future course, we close our labors on the present volume; and cheered by strong assurances of cordial support from thousands of our subscribers, we shall work on vigorously, trusting that all who already read the SCIENTIFIC AMERICAN will confidently believe that our past exertions form a partial exponent and satisfactory guarantee of our future efforts.

Fawkes' Steam Plow.

A powerful steam plow of thirty horse power having been constructed in Philadelphia for Mr. J. W. Fawkes, of Lancaster, Pa., the inventor issued circulars of invitation for a grand exhibition of its powers, to take place at Oxford Park—about 10 miles from Philadelphia—on the days of the 15th, 16th, and 17th inst. Having taken a deep interest in the subject of steam-plowing, we accepted the invitation of Mr. Fawkes to be present, and expected to be highly gratified with the display. We regret to state that, from the defect of two pinions gearing into the wheel on the main drum, our anticipations were doomed to disappointment. On Wednesday (the 15th), after the plow had traveled round the race course, it was set to work, but had not proceeded above 30 yards when the cogs of the pinions referred to were ripped off, and further operations entirely defeated. We regretted the result as a great number of persons, like ourselves, who had come from a distance to witness the operation, felt mortified, both on their own account and that of Mr. Fawkes. He deserved better success, as his

plow contains some good features and had made a very successful private experiment on the day previous. The plow is 18 feet long by 7 wide, has two horizontal cylinders of 9-inch bore and 15-inch stroke. The boiler is a "vertical tubular," and carries 150 lbs. of steam. The principle feature about it is that the whole frame and machinery are supported on a large rolling drum six feet wide and six feet broad. The power of the engine drives this drum, and it drags a gang of eight plows behind it in an adjustable angular frame. The motion from the crank-shaft to the drum shaft is imparted through cog-gearing, and it was defective teeth in one of these cogs which caused the break-down. It will soon be in operation again, and, with better pinions, it will no doubt give satisfaction, and may yet be the successful competitor for the prize of \$6,500, offered by the Illinois State Agricultural Society.

Humboldt's Will.

The late Baron de Humboldt has bequeathed to his domestic, Seiffert, who lived with him thirty-three years, all his immense library, all his furniture, and all his articles of value, with the exception of a few which he charges him to present to certain persons. His manuscripts, however, are not comprised in the donation, and among them is a geographical work of greater extent than any hitherto published. The domestic is his testamentary executor. The money in hand at the time of the baron's decease was under five hundred thalers. Of this sum he had given four hundred thalers to the servants, with written instructions to apply the money to the expenses of his funeral. As a proof of the little value M. de Humboldt set on personal distinctions, it may be stated that the great number of decorations which he had received from the sovereigns of all countries were found lying pell-mell in a cupboard. His legal heirs, the sons and grandsons of his brother William, had caused the property to be put under seal, not being aware of the donation to Seiffert. This old and faithful servant had some years before been appointed guardian of a royal palace at his master's request, but the king dispensed with his fulfilling the duties of his post during the lifetime of Humboldt.

To Stop Bleeding of the Nose.

Bleeding from the nose is very frequent in young people. Generally this is checked by the person sitting upright, bathing the nose externally with cold water, or vinegar and water, and sniffing it up the nostril. If, however, it continue, a moderate pinch of powdered alum may be put into a couple of tablespoonfuls of water, and thrown up with a squirt; or a plug of cotton dipped in this wash may be passed into the bleeding nostril, for generally it is only one side which does bleed; but care should be taken to fasten a strong thread securely round it, lest it be pushed in or slip so far back into the nostril that it cannot be got out without much difficulty. When there is frequent disposition to bleeding from the nostrils, it is necessary to prevent costiveness, and to take some saline purge continually, so as to keep the bowels rather relaxed. Persons who are subject to severe headaches, followed by bleeding of the nose, should never try to arrest the latter suddenly, but allow it to bleed freely for some time, in order to prevent congestion of the brain.

THE ATLANTIC FERRY.—Twenty-two steamships arrived at this port, Boston, and Quebec, during the month of May, from Europe. Twenty-one steamers in thirty-one days! Almost as many went the other way. It is only twenty-one years since the little Cork steamer, *Sirius*, the first to cross the Atlantic, made her appearance off the Battery. She was eighteen days in making the passage. Now it is accomplished in nine days. The arrival of the *Sirius* produced a sensation throughout the country. Now the arrival of twenty-two steamers in one month scarcely excites a remark. *Tempora mutantur.*

Cast-Iron Stairs.

When a fire takes place in a dwelling, in general the staircase, being of wood, goes early; means of escape are cut off; the inmates can neither get down to the street, nor up to the trap-door, so as to get on the roof of the next house. It has been suggested, as a remedy, to have the stairs made of cast iron; the one end of the steps to be inserted into the wall when the house is being built; the other end of the steps to be made fast in an upright square or round iron pillar, going from the ground to the top of the house. The stairs could be carpeted, and the steps made highly ornamental, with eyes cast for the stair-rod. Of course we only refer to private dwellings, as iron stairs of a very durable and ornamental character have been erected in several of the cast-iron stores in this city.

RIFLE CARTRIDGES.—The conical bullets for rifles sometimes oxydize and become too large for the bore of the barrel, and from this cause some of the British troops have experienced great trouble in India. To prevent this evil Capt. J. Norton recommended the following method of making cartridges:—"If the shot is coated with thin tough paper pasted on its cylindrical body, and a little forward on its conical front, the lead cannot then oxydize, and the shot preserves its proper size in all climates. The oxyd of lead is a poison, and causes wounds to mortify. This fact ought to be made known generally, and without any delay."

FRIGHTENING RATS.—An old work on catching rats contains the following simple method of banishing these pests from houses. The author says: "I shall here give the reader another maxim I have often followed very successfully. Take a pint of common tar, half an ounce of vitriol, and a good handful of common salt: mix them all well together in any old deep pan. Soak some pieces of paper, and place enough of this into the holes, sufficient to stop them, and then let the bricklayer make good after you; and if you should find any of the holes opened again, it is quite certain you did not put in a sufficient quantity; then put in some more; and if it is done as it ought, they will never approach there again while either taste or smell remains in it."

A REMARKABLE INSECT.—A paper has been sent to the Paris Academy of Sciences by M. Dufour, which describes the anatomy of a small insect not more than four millimeters (about the sixth of an inch) long, which possesses an organism as complete as a large vertebrate animal. It has a nervous system, brain and ganglia and a respiratory system. All the members of this insect are very minute and fragile, and have excited the wonder of the Parisian savans. We do not doubt it; Paris savans are an enthusiastic class of men.

SUBSTITUTE FOR TOBACCO.—"Any person," says the *Colonist* (West India) *Standard*, "who knows anything of the fragrance of the Pimento when in full blow, may form some idea of it by a pipe charged and lighted with the dried berry simply crushed in coarse bits. It cannot be well smoked in short pipes, but with the long cherry stick of a meerschaum it affords a treat beyond anything known in the use of tobacco. The coolies and native laborers are bringing Pimento into use in the place of tobacco."

A USEFUL HINT.—If a man faints away, instead of yelling out like a savage, or running to him to lift him up, lay him at full length on his back on the floor, loosen the clothing, push the crowd away so as to allow the air to reach him, and let him alone. Dashing water over a person in a simple fainting fit is barbarity. The philosophy of a fainting fit is, the heart fails to send the proper supply of blood to the brain; if the person is erect, that blood has to be thrown up hill; but if lying down, it has to be projected horizontally, which requires less power, as is apparent.

Correspondents

G. R., of Iowa.—Your wheel of 4½ feet diameter and 8 feet tread will run at the rate of 80 revolutions per minute. Its power, with 120 inches sluice area, will be about one-horse, without deducting the usual per cent. for friction, &c. There is certainly a very small quantity of water in your stream.

J. B., of N. Y.—A column of water pressing on a wheel will not give it any motion, although it may be

50 feet high, unless it escapes continually. It is the quantity of pressure multiplied into the velocity of the water which constitutes its power; water without motion exerts no mechanical power. You are pursuing an ignis fatuus.

J. J., of Me.—You cannot obtain a patent for a water-wheel operating in a vacuum chamber at the top of a fall, the water being forced through the bucket by atmospheric pressure. This principle was patented more than twenty years ago by Z. Parker. Transparent protectors, of horn, can be obtained in this city, but not the material for making them, so far as we know.

W. W., of Georgia.—If spent oils and tallow are treated with weak sulphuric acid to remove the dirt, they may be washed with water, and afterwards used for making soap.

Money received at the Scientific American Office on

account of Patent Office business, for the week ending Saturday, June 15, 1859:—

S. & F., of N. Y., \$100; A. H., of Ill., \$30; B. R., of Me., \$37; B. M. D., of Ill., \$25; N. B. of N. Y., \$30; E. J., \$25; G. & F., of N. Y., \$30; E. D. of Ark., \$20. G. E. H., of N. Y., \$20; P. S., of N. Y., \$25; I. & S., of R. I., \$30; H. J. H., of Mass., \$30; M. L. T., of Wis., \$30; T. S., of Cal., \$50; H. L. R., of Mich., \$25; D. E., of Ill., \$30; J. L. W., of O., \$35; D. Q., of N. H., \$25; H. C., of Ga., \$30; D. C. B., of N. Y., \$30; E. N., of Mass., \$30; W. H. H., of Cal., \$30; W. J. K., of Ga., \$15; E. C., of Mass., \$30; A. E., of Cal., \$35; P. & C., of Ind., \$35; E. & B., of Ill., \$20; A. H. C., of R. I., \$20; G. W. B., of Miss., \$30; J. & S. N. D., of Mich., \$30; J. B. S., of N. Y., \$60; W. P., of Mass., \$25; L. B., of Ala., \$35; H. B., of N. Y., \$10; H. K. S., of Mass., \$25;

W. D. N., of N. Y., \$30; M. B., of N. H., \$40; C. & M., of Ill., \$30; C. F., of Conn., \$30; W. H. S., of N. Y., \$50; P. McK., of S. C., \$350; C. W. S., of N. Y., \$50; M. K., of Iowa, \$54.

Specifications drawings and models belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, June 18, 1859:—

L. B., of Ala.; A. Le B., of Paris; H. H., of N. Y.; J. K., of Mass.; J. F. S., of N. Y.; J. F. W., of N. Y.; J. B. Q., of N. J.; W. D. N., of N. Y.; H. & H., of Mich.; H. K. S., of Mass.; J. P., of N. Y.; H. H., of Mass., 2 cases; P. & C., of Ind.; M. B., of N. Y.; M. R., of N. H.; D. Q., of N. H.; W. H. H., of Cal.; S. G. R., of Mass.; B. M. D., of Ill.; R. L. B., of Mich.; B. R., of Me.; F. & S., of N. Y.; W. P., of Mass.; P. S., of N. Y.

INDEX.

Illustrations.

A
Addressing Newspapers (Lord), 105
Alarm Clock and Lamp (Mathewson), 16
Alarm, Boiler (Miller), 44
Alarm, Burglar's (Robb), 132
Alarm, Steamboat and Water Gate (Miller), 137
Amalgamator, Gold (Fisher), 43
Apple Corer (Alcott), 244
Ash Sifter (Cummings), 256

B
Balance, Knife and Saw Combined (Smith), 265
Ball Box (Cummings), 168
Bath, 78
Bath, Shower (Mansfield), 168
Bedstead (Watrick), 160
Bedstead and Bureau (Hoffman), 132
Belt Shipper (Wells), 43
Belt Saw (Cameron), 241
Belting, Experiments with, 216
Bevel and Square (Bronson), 41
Blinding Machine (Sherwood), 245
Blind, Window (Ferber), 4
Blind, Window (Kelly & Livingston), 188
Blowpipe (Holley), 22
Boiler, Steam (Montgomery), 129
Boiler, Steam (Pierce & Griffiths), 316
Boiler, Steam, Blow-Off for (Washington), 252
Brush, Marking (Holt), 248
Buoy, Record (Gresham), 88
Burner, Gas (Tozer), 184
Butter Worker (Smith), 24

C
Callipers (Gould), 254
Can, Preserve (Manley), 24
Can, Preserve (Cotton), 209
Cap for Trace Fastening (Zink), 293
Car Seat (Woodruff), 17
Car Seat (Painter), 75
Car Seat (Hartman), 81
Car Seat (Case), 133
Car Seat (Liddle), 340
Car, Sleeping (Sibber), 233
Car, Sleeping (Jackson), 329
Car Brake and Starter, 119
Carpet Sweeper (Shaler), 53
Center Board for Vessels (Pratt), 300
Chair, Railroad (Crocker), 213
Chair, Bed (Graham), 330
Chair and Bed for Invalids (Favor), 56
Chair and Lounge (Gardner), 208
Choking Strap for Horses (Norvell), 272
Churn, Washing Machine, &c. (Swan), 108
Clover Picker (Mills), 329
Coal Washer (Evans), 197
Commissioner of Patents (Bishop), 312
Cooler, Water (Phelps), 200
Crank Motion, 256
Crimper, Hair (Lyons), 304
Cut-Off (Colman), 244
Cyclo-ellipse-Pantograph (Queen), 68

D
Distilling Apparatus (Koselen), 251
Drill, Self-feeding (Wakely), 61
Drill, Rock (White), 245
Dyeing Operations, 38

E
Electric Apparatus for Extracting Teeth, 118
Elevator, Hay (Gaddins), 164
Engage, Pulp (Kingsland), 33
Engine, Steam Fire (Lee & Larned), 56
Evaporator, Sugar (Cook), 141

F
Felly Bending Machine (Maun), 100
Forge, Portable, 136
Frenzers, Ice Cream (Massey), 32
Furnace, Boiler (Skelly), 8
Furnace, Wet Fuel (Bantz), 12

G
Gate, Valve and Pressure (Wain), 81
Gas Apparatus (Hendricks), 27
Gas Burner, Self-closing (Marshall), 49
Gate, Automatic (Rowland), 243
Gate, Farm (Boggs), 244
Governor, Fan (Whitaker), 333
Governor for Steam-engines (Porter), 38
Governor for Steam-engines (Broughton), 181
Governor for Steam-engines (Scrgeant), 297
Governor Valve (Cope & Hodgson), 207
Grate Bar (Savage), 141
Grain Measuring and Bagging (Barker), 233

H
Halter for Horses (Hawkins), 76
Hames (Cogswell), 244
Hanger for Shafting (Johnson), 53
Harrow and Seed-Planter (Root), 249
Hide-shaving Machine (Arnold), 235
Horse Power (Rider), 156
Horse Shoe (Hubbard), 188
Humboldt, Portrait of, 326
Husker, Corn (Mecham), 100
Husker, Corn (Spear), 284
Hydrant (Bryant), 336

K
Knitting Machine (Aiken), 321, 318

L
Lantern, Signal (Howard), 63
Lantern (Roessler & Frey), 145
Lath Machine (Hancock), 273
Laths (McNary), 149
Laths, Feed Motion for (Rennie), 73
Lever Power (Kenney), 336
Limes, Artificial (Palmer), 205
Lock (Gould), 113
Lock (Hobbs), 216
Loom (Scott), 9
Loom (Chesnut), 312

M
Match Safe (Merrill), 180
Meter, Dry Gas (Lloyd), 173
Milk Cooler (Mansfield), 292
Mill, Corn and Cob (Scarlett), 81
Mill, Grinding (Beardsley), 116
Mill, Hominy (Fahmy), 121
Mill, Paint (Tomson), 25
Mill, Quartz (Williams), 104
Millstone Balance Iron (Glover), 84
Motion, Changing (Smead), 236
Mower and Reaper (Jerome), 164

O
Odometers (Work), 300
Oscilloscope (Durr), 95
Our Manufactures—
Hoe & Co., 126
Wire Railing Co., 209
Ovens (Jennison), 244
Oyster Opener, 111

P
Paddle and Screw, 96, 112, 130, 140
Paddle-wheel (Locke), 176
Paddle (Schneider), 190
Paper Bag Machine (Keller), 54
Pedometer (Herring), 332
Peg Float (Peece & Hayman), 293
Pendulum, Compensating (Coffin), 249
Plane (C. Graham), 234
Planting Machine (Cottrell), 169
Plotting Instrument (Hill), 60
Plover, Seed-Planting (Rose), 108
Plover (Dickson), 124
Plover (Cockley), 144
Plover (Williams), 303
Potato Planter (Hawley), 49
Press, Hay and Hay (Cummings), 4
Press (Miller), 145
Propeller for Canals (Montgomery), 113
Pulley, Expanding, 129
Punch and Awl (Fletcher), 292
Pump (Fogay), 68
Pump (Jordan), 92
Pump (Zong), 136
Pump (Hidney), 295
Pump (De Yampert), 304
Pump (Schaffner), 309
Pump (Lawrence & Safety), 334

R
Radiator (Chester), 60
Rake, Horse (Squire), 23
Refrigerator and Milk Closet (Nash), 67
Refrigerator (Bartlett), 238
Refrigerator (McAvoy), 290
Regulator, Water (Coleman), 305
Refract Cover (Flynn), 165
Retort, Gas (Symmes), 184
Revolver (Newbury), 89
Rope Machine (Adams), 209
Rope, Serving (McLaughlin), 230

S
Sash Fastener (Williams), 224
Sash, Window (Huey), 284
Saw Gunner (Wolf), 116
Sawing Machine (De Witt), 1
Sawing Machine (Fitts & Sharp), 28
Scientific American Office, 257
Screw Cutter (Evarts), 41
Seat, Carriage (Foster), 4
Seed Planter (Jones), 4
Seed Planter (Morehouse), 20
Seed Planter (Drake), 224
Seed Planter (Lyons), 283
Seedling Machine (Keller & Fox), 75
Sewing Machine (Wilcox & Gibbs), 185
Sewing Machine (Burnet & Broderick), 249
Shuttle for Vehicles (Hoffmeyer), 43
Shingle Machine (Freeman), 372
Shingle Machine (Yates), 322
Shovel (Sabatini), 130
Sleigh Runner Attachment (St. John), 136
Slitting Machine (Hildreth & Bailey), 212

S
Smut Machine (Lutz & Russell), 176
Smut Machine (Lester), 200
Smut Machine (Woodward), 248
Smut Machine (Tobin), 259
Spinning Machine (Pittman), 236
Spinning Flyer (Sawell), 253
Stave Joiner (Halderman), 217
Steamer (Winans), 63
Stick, Composing (Calhoun), 220
Stool, Music (Leach), 41
Stone Gatherer (Bishop), 57
Stove, Cooking, for Ships (Beardsley), 160
Straw-cutter and Masticator (Sinclair), 124
Switch, Railroad (Dodge), 149

T
Table, Extension (Bader), 152
Threshing Machine (Harvey & Becker), 12
Trace Buckle (Smith), 516
Trap, Roach (Sheel), 68
Trap, Fly (Smith), 345
Trap, Fly (Clough & Burrell), 348

V
Valve Cock (Macdonald), 84
Valve, Governor (McCray), 144
Valve, Steam-engine (Michener), 28
Valve, Steam-engine (Stewart), 72
Valve, Steam-engine (Wicks), 192
Vices (Morris & Collier), 72

W
Washing Machine (Price), 36
Washing Machine (Allen), 56
Washing Machine (Johnson), 136
Wheel, Paddle (Oreut), 184
Wheel, Wind (Tomson), 25
Wheel, Wind (Butterfield), 225
Windmill (Ruggles), 64
Windmill (Whitman), 276
Wrench and Screw-driver (McKenzie), 196

Miscellany.

A
Agricultural Chemical Science 59
Alloys, Hardness of 145
Aluminum Becoming Cheap 253
Aluminum, Extracting the Metal 263
Amalgam Nerv, 72
Animal Curiosities 97
Asphalt, Composition Roofing 245
Axle Boxes of Locomotives 232

B
Bagasse Fuel 233
Balloons, Invention of 115
Balloons, Fire-extinguishing 302
Barometer, Aneroid 230
Bella, The 245
Belting, Experiments with 216
Belting, Testing 235
Bird-stuffing, Art of 318
Black Lead, Substitute for 220
Blacking Receipt 53
Blood, How to Stop 20
Boilers, Constructing 118
Boilers, Strength of 124
Boilers, Saving Fuel and Heat in 125
Boiler Explosions 145
Boilers, Preventive for Incrustations 55
Boats for Prevention of Poisoning 343
Bridge, Suspension Lumber 133
Brick-drying Tunnels 83
Cicada, Peculiar 225
Bronchitis, Cure for 20
Baoy, Record 88
Butter, Preserving 163, 236

C
Cables, Submarine 125
Camphor Ice 167
Candles, Tallow 52
Candles, Improvement in 117
Car Seats and Sleeping Couches 11
Car Brakes and Starters 119
Cars, Speed of Railroad 136
Cars, Heating Railroad 196
Castings, Steel 97
Castor Oil, Palatable 71
Cement for Broken China 20
Cements and Paints, Applying 3111
Chalk Drawings, Fixing 234
Chess-playing, Wonders of 62
Cider, New Kind of 173
Clay and its Uses 235
Cloth, Waterproof Glazed 265
Coal Gas 94
Coal Oils, Are they Explosive 101
Coal Oil, Young's Patent 186, 213, 231, 233
Cockroaches, How to Get Rid of 68
Coke, Despatching 230
Colors, Murexide 325
Coloring Machine, New 81
Concrete Buildings and Roofing 301
Concrete Floors 217
Concrete Houses 208
Combs, Geo. Death of 21
Compasses, Ship's 49

D
Days, Long and Short 291
Deaths, American in Europe 150
Deer Skin, Tanning 75
Domestic Recipe 129
Door Plates, How to Clean Silver 25
Dryer, Atmospheric 264
Dye, New Scarlet 240
Dyeing Operations 88

E
Eggs, Pickled 291
Electric Illumination 4
Electric Light, Cost of 44
Electric Conductors, Science of 243
Electricity in Surgical Operations 24
Electrotyping, Improvements in 4
Electuary, Castor Oil 9
Elements, Observations on the Connections of 263, 278
Ellsworth, H. L. Death of 145
Ellsworth, H. L. Will of 153
Embossing Wood 16
Enamelling Hollow Ware 318
Endomosa 153
Engines, Trial of Steam Fire 148
Engines, Steam Fire 285
Engines, Steam, Inventor of 235
Engraved Copper Plates, Covering with Copper 146
Explosions, Electricity and Steam 301

F
Fabrics, To Waterproof 243, 268
Fair of the American Institute 37
Farm Lands, Draining 301
Farming Memoranda 263
Feather, To Dye a Bright Scarlet 230
Files, How they are Made 23
Filter for Clusters 145
Fire on Ships, Prevention of 269
Fires on Land and Sea, How to Suppress Them 45
Fire-arms, Improvement in 312
Flax, Treatment of 221
Floor Coverings 243
Flowers, Artificial 75
Frames, To Re-gild 179
Franklin, Thomas to 214
Fruit, Preservation of 37
Fuel for Locomotives, 214

G
Garments, Fire-proof 20
Gas-lighting, Progress of 333
Glycerine, Iron 62, 70, 78, 86, 94, 110, 172, 178, 196
Glass, Grinding and Polishing 53
Glass, Soluble 50, 110, 192
Glass, Printing on 139, 144
Glass of Venetian 230
Glycerine 41
Gloves, To Clean 75
Gold, Order and Liquid 91
Grain Insects, Destroying 37
Grain Vine Disease 32
Grease, Balls to Remove 135
Guano, How to Remove 135
Guns, Casting Heavy 60
Gun, Electric 344
Gun Barrels, Browning 75, 183, 222, 340
Gusppowder, Iron 304
Gutta-percha, Substitute for 224
Gutta-percha, Defects of 70

H
Hair Dyes, 342
Hair Lotion, 45
Hair Wash for Dandruff 145
Hales and Mock Sues 281
Hams, Curing 45, 68
Hammer, Steam 75
Hands, To Keep White and Soft, 56
Hands, Chopped Cure for 173
Hoops for Cotton Bales, 515
Hoofbeats, Tunnel, 126
Hooper, How to Construct a 5 Bushel 36
Horses, Lockjaw in 8
Horses' Feet, Salt for 153
Horse Power of Steam-Engines, How to Calculate 93
Houses, Decorations for 220
Humboldt, Baron, Death of 317
Hydro-Carbon 241
Hydrophobia, Cure for 301

I
Ice Cream Receipts 333
Ice Houses 59
India-rubber, Patent 161
Indis-rubber, Patent 161
Indis-rubber, Patent 161
Ink, Marking for Linen 47
Ink, Solid 100
Ink, How to Make, 231, 243
Iron, Infusible 334
Iron and Steel, Improvements in 125
Iron and Steel, Polishing, Bluing and Annealing, 155
Inventions, Selling 35
Ivory, Artificial 112

J
Jewels, Artificial 63

K
Kaleidoscope Toy, 340
Kerosene, Phosgene and Camphene 207

L
Lace, To Cover with Copper 59
Lardner, Dr., Death of 324
Larder, Treating 133
Light, Hill's New 109
Light, Artificial, 125
Lightning, Advice About 294
Lithography, 121
Locomotives in Egypt 184
Locomotives, Firing of 252
Lock Factory (Hobbs) 312
Lord's Prayer, Engraving of 79
Lowell and his Cotton Manufacture 117

M
Machinery and Labor, 229
Mad Stomach, 19
Madder, Treating, 144
Magnetism, Something About 115
Mahogany for Ship-building 244
Marble, How to Clean 63, 157
Marbles, The Nineveh 285
Masters and Apprentices 5
Match Composition 49
Matches, Chemical 44
Matches, Friction, Inventor of 325
Metal, A New White 25
Metal, Hardening 133
Meteors, Shooting Stars, 54
Meteorology, 169, 177, 185
Micro-Photography 208
Milk, Report on 230
Milk, Scum 233
Molds, New Material for 20, 102
Mortar, How to Make it Impervious to Wet 305
Motive Agent, New 341
Mosquito Bites, Cure for 17

O
Od Force, The 297
Oil, Cocos 213
Oil, Coal (Young's Patent) 166, 213, 231, 233
Oil for Machinery 92
Oils, Fragrant and Scented 49
Oils, Tar 118
Olmshead, Professor Death of 308
Optical Illusion 80
Ores, Iron and Sulphur 205
Oyster Opener 111
Ozone, What it is 331

P
Paddle and Screw (Illustrated) 88, 96, 99, 112, 120, 132, 149
Paper, Aschma 49
Paper Materials 63
Parchment Vegetables 237
Parchment, Size 302
Pass the Pepper 99
Patent Office, New Appointments in 13
Patent Office Building 54
Patent Office, History of 263
Patent Law Changes in France 117
Patent Laws 151
Patent Law Question 73
Patent Laws, Canadian 270, 324
Patent Suit (Winans) 161
Patent Suit (Burden) 325
Patents Attachable 71
Patents, Committee on 125
Patents, Commissioner's Report on 235
Patents, Infringement on 253
Patents, Commissioner of (Bishop) 301, 313
Patents that Expire in 1859, List of 329
Patents, Extension of 250, 292, 324, 329
Patents and Patent Law Cases 260
Patented Machines, Using 35
Peach Trees 241, 303
Pease, Edw., Death of 13
Perfume, Making 294
Photographs, Waterproof Transparent 52
Photographic Process 91
Photographs on Glass 132
Photographic Agents 167
Photographs on Wood 259
Photographic Engraving 113
Phosphorescent 334
Pickled Beet Root, Spiced Vinegar, &c. 65
Plaster Casts, To Improve 20
Platinum 70
Plants in Rooms, 339
Plover, Steam Trial of 104
Plover, Steam Premium for 256
Plovering by Steam 54, 558
Podocarpus 118
Potato Rot 14, 55
Potentilla, New 236
Propellers, Gun Boat 237
Pulley, Expanding 129
Postmaster-General, Tribute of Respect to 297

R
Railroad Materials 60
Railroads in the United States 181
Railroad Street 326
Reaping Machines, Notes on 73

S
Reaper, Extension (McCormick) 160, 193, 205
Road Lead, Substitute for 226
Rifles, Enfield, 324
Ringworm, Cure for 111
Robertson, W. H., Death of 341
Rule Machine 76

S
Salt as a Fertilizer 94
Saws, Power to Drive 128
Saws, Balancing 188, 204
Saw-mills without Balance Wheels 270
Scarlatina and Measles 81
Scalds, To Cure 115
Scut, Twin Rose 85
Science and Scientific Men 101
Scientific American Office 257
Science of Familiar Things 298
Scorbuta, Cure for 31
Sea Sickness, Cure for 44
Sewing Machine Controversy 13, 69
Sewing Machine Inventors 61
Sewing Machine Patent Case 124, 161
Sewing Machine Patent Claims (Grove & Baker) 154
Sewing Machine Decision 297
Sewing Machine Patent in England (Howe) 333
Shafts, Wood Bearings for 183
Shades, Ancient 304
Ship "General Admiral," Launch of 30
Ship "General Admiral," Trial Trip of 317
Ships of War 170
Ship Building, Novel Experiments 97
Silk, How to Gild 264
Silicate for Wood 243
Silver, Extracting from Copper Ores 30

T
Skates, Queen Victoria's 169
Stains, Mahogany, Rosewood, &c. 75, 129
Stains, To Remove 118
Steam Propulsion (Crank and Paddle Wheel) 29
Steam on Canals 69 104
Steam, Elastic Force of 129
Steam Superheated and Cylinder Jackets 125
Steam Jacket, Benefit of 309
Steamship "Australia," Loss of 37
Steamship (Winans) 65, 102, 103, 127, 163, 170
Steamships, Duty of 248
Steel, Tempering 37
Steel, Indian 38
Steel, American 61, 217
Steel, How to Blue 214
Steel Wire 221
Steel, Science of Making 233
Steel Grindings, Utilizing 306
Steel Tools, Tempering 310
Stones, Preservation of 77
Stone Cracker 116
Soap 149
Soap Powder for Shaving 41
Sugar Cane, Cutting 205
Sulphur, Combination of 153

T
Tea Cup, History of 246, 254
Teeth, Extracting by Electricity 118
Teeth, Advice About 304
Tables, Ancient 341
Telegraph Celebration 5
Telegraph Cables, Submarine 14, 240
Telegraph, Atlantic Origin of 21
Telegraph Conductors 46, 54
Telegraph, Retardation of Signals Through Atlantic 94
Telegraph, New 176
Telegraph, Revised 232
Telegraph, Science of Ocean 13
Telescope, The 155
The Salt, if you Please 61
Thermometer recording 249
Timber, Seasoning and Preserving 154
Timber, Time to Cut 175, 219
Timber, Graphical for 243
Timber, Cutting Fence 255
Tools, Preventing from Bending 164
Tomatoes, 305
Trade Marks at Law 816
Trees, Manuring 318
Trees, Barking and Renovating, 239
Turnip Fly, To Destroy 167

V
Varnish, Black Japan 45
Varnish, Copal 46
Varnish, Crystal 46
Varnish, Lac 44
Varnish, Oil 46
Varnish, To Rub the Pile on 115
Ventilating Waterproof Cloth 141
Vinegar, Test for 135
Volcanoes and their Actions 80

W
Water Pipes, Wooden 41
Water, Odoriferous 48
Wax Poisons 76
Weaving by Machinery 28
Weights and Measures 229
Weights, Verifying by Measure 287
Wells, Ice 299
Whitewash Receipts 204, 311
Wine, Currant 27
Wine, Preserving 78
Wood, Artificial 363
Wood, How to Color 246

Patent Claims.

A

Acids, Fatty 43, 174
Adding Machines 35, 74, 274, 276, 284
Air Blowing Apparatus 218
Alarm, Burglars 26, 53, 82, 191, 198, 227, 238
Alarm, Prison 2
Alarm, Railway 150
Alarm, Steam Boiler 42, 290
Alkalies, Caustic 191
Alkalies, Caustic, Putting up 183
Alkalies, Caustic, Boxes for Preserving 191
Altitudes, Measuring 135
Altitudes, Taking 191
Aluminum, Preparing 67
Aluminum and Calomel, Preparing 67
Amalgamators 114, 166, 174, 235, 242, 259
Anatomizing Rifles 218
Anchor Trippler 282
Apple Cutter and Corer 218
Apples, Grinding 234
Aquaria 43, 53
Arithmetical Proof Rule 87
Arms, Artificial 153 (2)
Astronomical Instrument 90
Augers for Wood 107
Augers, Attaching Cutter Lips to 135
Augers, Expanding 250
Axes, Making 243
Axes, R. R. 34, 338
Axes, Attaching Thills to 123, 150, 226, 233
Axles, Preventing Friction of 193
Axle Beams for Locomotives 142
Axle Box for R. R. Cars 381

B

Bag Machine, Pasting Apparatus for 107
Bags, Carpet 275
Bags, Mail 234, 395 (2)
Bags, Mail, Fastener for 190
Bag Fastener 323
Bagging, Bolting and Measuring 318
Baking Articles Composed of Carbon 135
Balance and Knife Combined 13
Bale Bands, Tightening 2
Bale Bands, Fastenings for 2, 18, 58, 67, 134, 183, 214, 234, 235, 266 (2), 267, 275, 306, 323
Balls, Billiard 10
Balls, Patching Rifle 67
Ballot Box 43
Balloons 226
Bands for Binding Grain 267
Bands 123, 199, 211
Bandboxes 150
Bank Notes, Printing 339
Barley Pearl 299
Barrel Machinery 43 (2)
Barrel Packer 254
Barrels, Chumpering and Crozing 50, 183, 292
Bars, R. R. securing ends of 82, 106, 107
Bars, R. R. 346
Baths, Photographic 43
Baths, Shower 122
Bathing Apparatus 166, 175
Bats for Felt Cloth 67
Bats, Crickets 210
Beams, Crutches 210
Bee Hives 67, 82, 102, 150, 191, 198, 218, 227, 331, 339
Bed Bottoms 18, 53, 91, 175, 211 (2), 270, 274, 280, 291, 323, 339
Bed, Wardrobe 275
Bedstead, (Design) 19
Bedsteads 19, 58, 227, 267, 282
Bedsteads, Bureau 67, 307
Bedsteads, Fastening for 18, 143, 242, 250, 267, 323, 239
Bedstead Post 174
Bedstead, Spring 251
Bedstead Sofa 291, 331
Bells, House 2
Bells, Hanging 10, 276
Bells, Table 237
Bells, Sounding 250
Bell Ringer, Automatic 227
Bellows Pipe, Welding 2
Belt for Flour Mills 261
Belting, Machine 34
Belting, Elastic 290
Belting, Manufacture of 331
Bench, Folding 124
Bench, Joiner's 323
Bending Machine, Wood 151, 210, 234
Bending Machines, Strapping Wood 126
Berths for R. R. Cars 68
Billiard Cue Tips 160
Billiard Tables 75, 90, 266
Billiard Tables, Cushion for 22, 114, 250 (2)
Billiard Tables, Cushion Rail for 250
Billiard Tables, Light Shade for 238
Billiard Tables, Pocket Handle for 333
Bits, expansion 34, 148
Bits, Securing in Stocks 242
Bits, Blade 158, 338
Bits, Fastening Center 246
Blackening 211
Blankets or Aprons, India-rubber 238
Blasting Apparatus 143
Blinds, Window 10
Blinds, Window, Rolling 43
Blinds, Window Operating 10, 85, 50, 106, 166
Blinds, Window, Turnbuckle for 143
Blind Fastener, 142, 210
Blind Slate, Boring for making 106
Blind Slate, Boring 246
Blocks, Spelling 51
Blocks, Stop 306
Blocks, Tackle 34, 74, 106, 142
Blocks, Tripping, for Boat Davits 74
Boat for Transporting R. R. Cars 174
Boats, suspending and liberating 307
Boilers, Steam 51, 122, 123, 210, 266 (2), 267, 275, 283, 293, 333, 339
Boilers, Steam, Safety apparatus for 75
Boiler, Steam Sediment Collector for 106
Boilers for Ranges 43
Boiler, Feed Water Apparatus for 122, 150
Boilers, to prevent incrustations in 114
Boilers, to prevent explosions of 115
Boilers, Blowing off Steam 174
Boilers for Generating Steam 218
Boiler for Shutters 25
Boiler for Doors 315
Boiler, Drawing 74
Boiler, Threading 191
Boiler and Rivet Machine 210
Boiler Heater 242
Bomb Lance 90, 298
Bone Black, reinvigoration of 175
Books, numbering pages of 43
Book-marks 50, 128
Book and Slate combined 75

C

Books, Stapling Backs of 246
Boots and Shoes, Stretching 2
Boots and Shoes, Soles 10, 26
Boots and Shoes, trimming soles of 90
Boot-blackening Apparatus 166
Boot Jacks 142, 174, 175, 191, 210
Boot Trees 266
Boring Machine 134, 174, 331
Bottles, Nursery 19, 159
Bottles for Holding Mercury 58, 143
Bottles, Molds for 90
Bottles, Securing Corks in 330
Bottles, Screw Neck 106
Bottles, for Castors 198
Bottle Stopper 124
Bottle Stopper, Fastening 234
Box, Fruit 10
Boxes, Portable 50
Boxes, Journal 11
Boxes for Carriage Wheels 50
Boxcar, Car Axle 74, 75
Bracelets 3
Bracing Machine 91
Brakes, Car 75, 114, 123 (2), 143, 234, 242 (2), 222, 275, 283, 306, 339
Brakes, Wagon 26, 150 (2), 175, 331
Brakes, Hemp 18, 42, 75, 135, 166, 174, 306, 331
Brakes, Sled 122
Break Heads for R. R. Cars 282
Bread and Cracker Machine 31
Bread, raising dough for 43
Breakwater 338
Brest Pipes 53
Brest Pins, Fastening for 167
Brest Pads and Perspiration Shields 314
Brick Machines 11, 26, 66 (2), 174, 227, 242 (2), 222, 275, 283, 306, 339
Brick Molds 98, 218
Bricks, Enamel Composition for 338
Bricks, Fire 51
Bricks, Finishing 338
Bricks, Turning or Edging 191
Bricks, Manufacture of 515
Bridges 3, 174, 291
Bridges, Truss 98
Bridges, Connecting Braces of 218
Bridles for Kicking Horses 66
Bridles 208
Bristles, Cleaning 260
Brooches and Ear Rings 210
Brooms 330
Brooms, Split 323
Brushes 125
Brushes, Manufacture of 11
Brushes, Fountain 210
Brushes, Stencil 314
Buckles 124, 322
Buckles, Harness 135
Buckets, Self-dumping 191
Buckets, Hanging Well 234
Buckles, Joint Bolted 274
Building Materials, Composition of 51
Bullet Machine 11, 12, 122, 109
Bung Cutter 91, 338
Buns, Valve 190
Bural Cases 282, 292
Burners, Gas 18, 27, 43, 50, 143, 158, 159, 199, 266, 299
Burners, Spirit Gas 339
Burners, Vapor 68, 115, 148, 181, 182, 275, 283
Burners, Lamp 114 (2)
Burnisher for Lathes 143
Burnishing Machine 267
Burring Machine 143, 338
Butter 114, 262
Butter Worker 10, 338

D

Cables, Submarine Telegraph 242, 250
Cable, Submarine Telegraph, Laying 35 (2)
Cables, Submarine Telegraph, Paying-out Apparatus 2
Cables, Submarine Telegraph, Character 198
Cage for Oil Shafts 338
Callipers 274
Callipers and Dividers 10
Camera Stand 251
Cameras, Diaphragms for 11
Cameras, Box 51
Candles, Manufacture of 48, 128, 175
Candles, Paraffine 191
Candle Machine 66
Candlestick 75
Cane Juice, Desiccating and Clarifying 183
Cannon, Breech-loading 122, 123, 142, 213
Cannon, Automatic Finger for Closing Vent of 338
Canopy for R. R. Cars 314
Cans, Paint 51
Cans, Preserve 134, 196, 250
Cans, Fruit 143
Cans, Sealing Preserve 2, 114
Cans, Stamping Milk 11
Can, Milk 34
Canteens 154
Canteens, Gun-stock 160
Caoutchouc, Treatment of 82, 199, 218
Caoutchouc, Vulcanizing 298
Caoutchouc, Vulcanizing 246
Capstans 267
Carboys, Finishing 211
Card Clothing 43
Carding Machine 2
Carding Machine 323
Carpet Fastener 2 (2), 134, 242, 274, 282, 331
Carpet Stretcher 42, 198
Carpet Sweepers 11, 42 (2), 43, 58, 160, 168, 191, 199, 267, 322, 323
Carpets, (Design) 199 (2)
Carriage, Rocking 338
Carriage, Top 250
Carriages, Children's 2, 122
Carriages, Horse 10
Carriages, Wear Iron for 43
Carriages, Sugar Cane 282, 290
Carriage Bodies, Hanging 246
Cars, Freight 330
Cars, Dumping 338
Cars, Iron R. R. 243
Cars, Moving 196
Cars, Starting 190, 338
Cars, Sleeping 150, 158, 168
Car Seats and Couches 2 (4), 10 (2), 11, 19, 27, 34, 43, 74, 75, 122, 134 (2), 135, 143, 174, 182, 211, 275, 299, 323, 330, 331
Car Trucks 250, 330
Carts, Weighing 75
Cartridges 19
Cartridge Cases 153
Cartridges, Packing 167, 234
Cases of Stereoscopic Pictures 322
Casket, Traveling 3
Casters, Trunk 292
Castings, Clearing 227
Castings, to prevent incrustations of 115
Castors, Table 297
Catch for Hanging Drapery 131
Cattle Guard 251
Cements, Fire-proof 2
Chain Machine 2
Chain Cable, Stopping 199
Chain, Surveyor's 252
Chairs 51
Chairs, Cane Seats for 10
Chairs, Dentists' 26
Chairs, Folding 122
Chairs, Ornamental 242

E

Chairs, Recumbent 2, 98, 175
Chairs, Rocking 150, 338
Chairs, Reclining for R. R. Cars 282
Chair, R. R. 134, 75, 166 (2), 187, 174, 182, 374, 282, 283, 330, 338
Chair, R. R. Coupling for 331
Chairs, Rolling R. R. 3
Chairs, Ball Splicing 267
Chairs, Sofa, etc. (Design) 245
Chair Bottoms 142, 234
Chair and Lounge 174
Chamfers, Cutting on Wood 107
Chamfering Tool for Soles of Boots and Shoes 50
Checks, Baggage 43
Cheese, Making 191
Chimneys 226
Chimneys, Increasing Draft of 153
Chimney Caps 56, 98, 322, 338
Chisel, Mortising 190
Churns 2, 18, 26, 35, 66, 83, 90 (2), 107, 190, 198, 199, 218, 236, 227, 250, 274, 307 (2), 222, 330 (2)
Churn 252
Cigar Wrappers 26, 43
Clamp, Joiner's 330
Clamp, Paper 330
Clamp, Paper 251
Clamp, Bolt 169
Clay, Molding 10
Clay, Tempering 339
Clay, Working 18
Clay, Metal 183
Clay for Carriage Thills 246
Clock, Alarm 190, 346
Clock Crusher 251
Closets, Water 10, 50, 153, 243
Cloth, Elastic 125
Cloth, Filling in the Piece 67
Clothes Dryer 52 (2), 333
Clothes Fastener 220
Clothes Frames 155, 175, 183, 199, 281, 286, 275, 306, 339
Clothes Horse 142
Clothes Rack 210
Clothes Pins, Slotting 143
Clothes Sprinkler 155
Clothing, Machine 267, 276
Clover Picker 168
Coal Breaker 306
Coal Dust, Burning 90
Cocks, Filtering 74
Cocks, Gate 154, 219
Cocks, Steam 2
Cocks, Stop 238, 290
Cocks, Valve 2, 18
Cocks, Water Basin 237, 275, 307
Cock, Stop 346
Coffee Pots 58, 150, 174, 189, 190, 210, 275, 283, 307, 331
Coffee Roasters 3, 10, 56, 167, 274, 275, 289, 314
Coffee, Malt 115, 275, 346
Collars, Shirt 169
Collars and Cuffs 260
Collisions, Preventing on R. R. 284
Comb Machine 190 (2), 307
Comb Teeth, Cutting 339
Condensers, Steam 121
Condensers, Surface 22
Conveyors for Removing Earth 153
Cooking Range and Heater 34
Cooking by Steam 323
Coolers, Beer 314, 323
Coolers, Flour 82
Coolers, Milk 166
Coolers, Water 275
Coolers, Water Metallic Lining for 226
Coolers, Water for Steam-Engines 282
Copying Apparatus 10
Cordage Machines 231
Cores for Molding Plastic Substances 143
Cork Cutter 74, 198
Cork Machine 307
Cork, Composition, Water-proof 114
Cork, Stripping 21
Corn Picker 143
Corn Planters 3, 26, 25, 106, 128, 163, 167, 219, 224, 250 (2), 306 (4), 307
Corrugating Metal Plates 275, 288, 290
Corsets and Bustles 142, 151
Cotton, Combining 67
Cotton Gins 2, 25, 43, 51, 151, 293, 299, 300
Cotton Gins, Feeder for 107
Coupling, Car 18 (2), 50, 67, 166, 236, 238, 242, 251, 267, 283, 293, 300, 323, 324, 340
Coupling, Gas 192
Coupling, Hose 106, 210, 250, 323
Covers, Condensing 266
Covers for Bad-iron Heaters 3
Covers for Traveling Trunks 274
Cover, Vault 266
Cover Lifter for Stoves 275
Cracker Machine 34, 182, 198, 231
Cradle 90
Cradle, Folding 323
Cradle, Rocking 320
Cradle, Wagon 227
Cradle for Dry Docks 128
Crane, Dredging 83
Crane for Heating Barrels 261
Crane, Root 107
Crossing for R. R. Tracks 218
Crust, Pepper 124
Crust, Vinegar 315
Crushers, Corn 330
Cultivators 2, 10, 55, 43, 50 (2), 51, 59, 107, 123, 142, 150, 151, 166, 190, 219, 226 (2), 251 (2), 306 (2), 314, 315 (2), 322, 323, 330 (2), 333, 346 (2)
Cultivators, Cotton 160, 163
Cultivator Teeth 198
Cup, D. 19
Curtain Fasteners 106, 210
Curtain Lock for Carriages 210, 299
Curtain Rack 323
Curtains, Folding 143
Cut-Off for Steam-Engines 2, 267
Cut-Off, Variable 274, 283 (2), 328, 338, 314
Cutters, Attaching Handles to 181, 227, 292
Cutters, Bread 274
Cutters, Cheese 267, 339
Cutters, Corn and Cob 292
Cutters, Grass 26
Cutters, Gas Pipe 290
Cutters for Turning Hubs 106
Cutters, Meat 10, 18, 210, 284, 330
Cutters, Vegetable 166, 210
Cylinders, Brush 26
Cylinders Wire Cloth, Frames for 50

F

Door Fastener 143, 234
Doors, Water-tight 266
Dough Rolling Machine 243
Dovetailing Machine 18, 198
Dovetailing, Cutting 107
Dovetail Joint 274
Draft Regulator for Steam-Engines 183
Draft Apparatus for Furnaces 168
Drawing Boards 2
Dredging Machine 34, 143
Drills 90
Drills, Rock 346
Drills, Rock 51
Drills, Metal 123, 218
Drills, Grain 274
Drill Stocks 314
Drop of Forging Metal 82
Drying Apparatus for Shoe Pegs and Grain 282
Drying Fibrous Substances 330
Dust Pan 339
Dynamometers 135

G

Gage for Contents of Casks 53
Gage for Weatherboarding 315
Gage, Liquid 89
Gage, Steam and Water Alarm 123, 298, 307
Gage, Steam Pressure 2, 210, 298, 299, 307
Gage, Paper 158
Gage, Water, for Steam Boilers 68, 123, 310
Gage, Pressure 346
Gaging Device for Handaws 267
Garments, Securing to Hooks 199
Gas Heating and Illuminating 123
Gas Illuminating 270
Gas Lighting by Electricity 198
Gas Purifying 114, 135
Gasometer 66
Gates 19, 43, 51, 98
Gates, Canal 107, 376
Gates, Farm 250
Gates, Opening and Closing 53 (2), 85, 114, 190, 226, 230, 283
Gates, R. R. 234
Gearing 98 (2)
Generators, Gas 67, 143, 270, 298
Generators, Steam 31, 123, 266, 275
Glass, Molds for Pressing 339
Glass, Ornamenting 66, 166
Glue Drying 339
Gong or Bell for Signals 323
Governor for Steam Engines 134, 218, 282, 299 (2)
Governor for Sugar Mills 283
Grain, Machine for Cutting 43
Grain Cleaners 43, 227, 276, 299
Grain Drills 50
Grain Discharging Attachment for Harvesters 66
Grain and Fruit Dryers 98, 166
Grain Fan and Corn Sheller 167
Grain Gatherer 167
Grain, Scouring and Hulling 219
Grain Sieves 191
Grain Sifters 346
Grain Trucks 346
Grates 275
Grates for Coal Stoves 10
Grates, Furnace 283
Grate Bars 98, 266, 338
Grasses, Mowing 114 (2), 122
Grubbing Machine 83
Guard for Circular Saws 114
Guard Finger for Harvesters 19
Guides, Folding 43
Gun, Contrivance 314
Gun, Self-priming 275
Gun Carriages, Quoins for 134
Gun Lock, Self-priming 274, 346
Gun Stocks, Coupling with Pistols 166

H

Hair Crimpers 298
Hair Restorative 218
Hame Fastener 90
Hames, Making 151, 198
Halters for Horses 43
Hammers 26
Hammers, Steam 15
Hammers, Forge 90
Hammers, P. O. Stamp 346
Hammers, Trip 115, 346
Hammers and Anvil 43
Hammer Head 58
Handles, Lifting 75
Handles for Spoons and Forks (Design) 281
Harness Attachment 218
Harness Breeching, Attaching to Wagon Thills 298
Harness, Creasing and Blacking 75
Harness Sumps 122
Harpoon 74
Harrow 10 (2), 19, 206, 322, 338
Harrow, Rotary 36 (2), 62, 150, 167, 182, 274, 275, 307, 338
Harvesters, Grass and Grain 2, 3 (4), 10, 18, 33 (2), 24, 43, 50, 51 (2), 53 (2), 75, 82, 90, 106, 107, 114 (2), 122, 134 (2), 150, 167 (2), 175, 182, 193, 190 (2), 198 (2), 199, 210, 211, 218 (4), 219, 226, 299 (2), 281 (2), 267, 274, 175 (2), 276, 282, 283 (2), 284, 291 (2), 298, 299 (2), 304, 307 (2), 315 (2), 322 (2), 323, 330, 338
Harvesters, Corn and Cane 58, 75, 114, 120, 168, 216, 286, 287 (2), 290, 323, 326
Harvesters, Cotton 228
Harvesters, Cutters for 10, 18, 143
Harvesters, Gathering and Discharging Apparatus for 134
Hat Body Machinery 3, 122
Hat Bodies, Forming 174
Hat Bodies, Hardening 314
Hats, Felt 306
Hat, Ventilating 314
Hat Rack (Design) 263
Hay Loading Machine 306
Hay Mower 251
Hay Making Machine 346
Heat, Generating 75
Heating Apparatus 167, 174, 275, 218, 224
Heating Apparatus for Cemented Sole Shoes 18
Heating and Ventilating Buildings 98
Heating and Purifying Feed Water for Steam Boilers 234, 275, 323
Hearts for Working and Refining Iron 211
Heels for Boots and Shoes 123, 175, 234, 242, 331
Hides, Apparatus for Handling 211
Hides and Skins, Treatment of 198
Hinges 50, 67, 183, 291
Hinges, Blind 2, 107
Hinges, Gate 13, 74
Hinges, Latch 298
Hinges for Reflectors of Stereoscopes 200
Hinges, Strap-Cutting out 239
Hoes, Manure 267
Hoisting and Dumping Apparatus 10, 150
Holists Machine 323
Horn Machine 222
Horn Machine 222
Hook, Self-mooring 66
Hook for Vest Chains 339
Hoops, Cutting Locks of 18
Hoops, Notching and Trimming 18
Hoops, Machine for Dressing 158
Hop Frames 250
Hop Liquor, Preparing for Breweries 229
Horse Collars 58, 158, 274 (2)
Horse Power 18, 90, 167, 174, 235, 291, 299

I

Horse Power Equalizer 198
Horse Power for Driving Saws 134
Horse Power Machines, Constructing 276, 322, 338
Horse Power, Shafting for Endless Chain 307
Horse Shoe 29, 210
Horse Shoe Machine 51, 166, 167, 188, 207
Horse Shoes, Sharpening Calks of 290
Horse Truck 246
Hose, Cleaning 2
Hose, Engine 122
Hose, Leather, Water-proof 290
Hose Pipes, India-rubber 183, 190
Hose, Suction 339
Hose, Textile 3
Hubs and Axles Connecting 226
Hubs for Carriage Wheels 322
Hubs, Hewing out 237
Hub Borer 272
Hub Turning Machine 10
Hullers, Clover 330
Hullers, Grain 246
Huskors, Corn 2, 18, 174, 191, 242, 215, 283
Hydrants 2, 59, 134, 198, 266, 283, 333
Hydro Carbon, Supplying with Oxygen 191

J

Ice, Hoisting and Storing 107
Ice, Planing and Shaving 315
Ice Pick 155, 307
Indicator, R. R. 10, 74
Indicator, Steam Pressure 11, 139
Indicator, Water 43, 314
India-Rubber Fabrics, Manufacturing 315, 327
India-Rubber Goods 114
India-Rubber, Hard 107
India-Rubber, Restoring Waste 107, 2-3, 201
India-Rubber, Treatment of 183, 282, 283, 290
India-Rubber, Vulcanizing 306
India-Rubber, Cutting into Threads 331, 346
Ink Bottle (Design) 189
Inkstands 3, 26, 143, 155, 327
Iron, Manufacture of 267
Iron, Moving at the Rolls 338
Iron, Preserving Surfaces of 94
Iron, Rolling 42, 251
Iron, Refining 216
Iron, Rods for Planishing 66
Iron, Sheet Manufacture of 51, 54
Iron, Sheet Rolls for Making 43
Iron Columns, Securing Sides of 188
Iron, Composition for Cementing 346
Iron, Smoothing 66, 306
Ironing Machine 11
Jacks, Lifting 2, 53, 254, 283, 330
Jewelry, Rolling Metal for 346
Joints for Gas Pipes 291
Joints, Making Tight 68
Joints for R. R. Tracks 10
Joints for T-Rails 18, 74
Journals of Locomotives, Oiling 168, 234
Journals, Reducing the Friction of 90
Juices, Extracting and Ascertaining 294

K

Kettles, Oil 106
Key Bolts for Attaching Carriages to Thills 211
Keyhole Stop 34
Keys for Strap Connections of Engine 283
Kid Skin, Dressing 338
Kilns, Fire 114
Knives 274, 307
Knives, Machine 10
Knife, Apple-paring 43
Knife, Hand 282
Knife, Pruning 307
Knife Sharpener 90, 191 (2)
Knives to Cut Paper Bags 43
Knives, Grinding and Polishing 60, 298, 328
Knives, Shoe 239
Knitting Machines 3, 50, 62, 98, 175 (2), 298, 328

L

Labels for Trees 125
Ladder Instrument 92
Ladder, Fire Escape 123
Ladder, Fireman's 215
Ladder, Extension 318
Lamps 2, 26, 74, 33, 123, 142, 150, 189, 174 (2), 175, 191, 210, 218, 226, 286, 274, 298, 314, 346
Lamps, Carcel 151
Lamps, Gas 381
Lamps, Holders for 166
Lamps, Lighting by Electricity 51
Lamp Case for Locomotives 94
Lamp Lighters 227
Lanterns 18, 174, 234
Lanterns, Attaching to Caps 13
Lanterns, Attaching Lamps to 75
Lanterns, Signal 168, 199
Lard, Rendering 31
Lards 151, 181, 198
Latch, Door 114, 330
Laths, Cutting and Sawing 49, 90, 160
Laths, Riving from the Block 190
Laths, Metallic 275, 298
Lath Clutch 260
Laths for Cutting Screws from Wire 69
Lathes for Finishing Dental Plates 159
Lathes for Turning Wood 82
Lathes for Turning Masts 142
Lathes for Turning Irregular Forms 207
Lathes, Machine 142
Lathes, Watchmaker's 250, 261
Lathes, Watchmaker's Chuck for 211
Lead, Bar Packing 210
Leather, Artificial 43, 266
Leather, Creasing and Blacking 281
Leather, Famed 307
Leather, Finishing 339
Leather, Machine for Splitting 98, 306
Leather, Stitching 191
Leaves of Music Books, Turning 167
Letter and Envelope Combined 324
Letters, Sealing 239
Lever, Hand 339
Lever Power 10
Lewie's for Attaching Tackle to Masts of Stone 128
Life Berths for Vessels 114
Life Boats 266, 266, 275
Life Boats, Floats for 26
Life Boats, Mattrass 11
Life Boats, Water Cask 268
Life Preservers 31
Lifting Apparatus 66
Lights, Ship's 224
Lighting Rods, Insulating end Supporting 107
Lighting Rods, Insulators for 106, 260
Lighting Rods, Securing 283
Limbs, Artificial 274, 298, 314

M

Machines, Machine 142
Machines, Watchmaker's 250, 261
Machines, Watchmaker's Chuck for 211
Lead, Bar Packing 210
Leather, Artificial 43, 266
Leather, Creasing and Blacking 281
Leather, Famed 307
Leather, Finishing 339
Leather, Machine for Splitting 98, 306
Leather, Stitching 191
Leaves of Music Books, Turning 167
Letter and Envelope Combined 324
Letters, Sealing 239
Lever, Hand 339
Lever Power 10
Lewie's for Attaching Tackle to Masts of Stone 128
Life Berths for Vessels 114
Life Boats 266, 266, 275
Life Boats, Floats for 26
Life Boats, Mattrass 11
Life Boats, Water Cask 268
Life Preservers 31
Lifting Apparatus 66
Lights, Ship's 224
Lighting Rods, Insulating end Supporting 107
Lighting Rods, Insulators for 106, 260
Lighting Rods, Securing 283
Limbs, Artificial 274, 298, 314

- Liquors, Malt, Preserving 50
Locomotives for Propelling Plows, etc. 298
Locomotives, Magnetizing the Driving Wheels of 276
Lock Attachment 339
Locks 2, 36, 37, 75, 82, 93, 123, 142, 210, 218, 219, 222, 267, 315, 339
Locks, Alarm 11, 271
Locks, Bank 46, 51, 74
Locks, Cam for Throwing Bolts in 42
Locks, Door 18, 190
Locks, Gun 190
Lock and Key 74
Locks and Latches 234
Locks for Piano Fortes 234
Locks, Ring 166
Locks, Safe 90 (2)
Locks, Trunk 222
Locks (Design) 59
Logs, Rolling and Piling 3
Looms 10, 151, 346
Looms, Fringe 83
Looms, Harness, Filling Needles in 251
Looms for Weaving Fringe 2
Looms for Weaving Hair Cloth 51
Looms for Weaving Figured Fabrics 43
Looms, Power 50, 226
Looms, Picker Staff for 93
Looms, Shuttle Box for 142
Looms for Weaving Plaids 330
Loom Temples 339
Lounge 174
Lubricating Car Axles 42
Lubricating Composition 106
Lubricator 53, 292
Lumber, Seasoning 330
- M**
Machinery, Constructing and Disconstructing 320
Mallets, Construction of 260
Mandrels 299
Mansure, Artificial 153
Mashing Apparatus 219
Match Box 130
Match Safe 51
Match Splines, Making and Arranging in the Dimple Frames 291
Matches, Friction Composition for 153
Matches, Making Water-proof 296
Mattresses 339
Mattresses, Elastic Material for 82
Measure, Grain 143
Measuring and Recording by the Tape 114
Measuring Machine for Cloth 331
Measurer, Fluid 283
Meal and Flour Making 163
Mechanical Movement 75
Melodion 90
Metal Bars, Machine for Cutting 26
Metals, Casting 51, 152
Meters, Dry Gas 43, 222, 331
Meters, Liquid 123
Meters, Gas 43
Meters, Water 219, 290
Mill Drivers 531
Mills, Burr Stone 183
Mills, Cider 65, 238
Mills, Coffee 242
Mills, Cooling and Feeding Material for 282
Mills, Corn and Cob 199, 292, 315, 331
Mills, Fanning 183
Mills, Grinding 91, 150 (2), 152, 192 (2), 219, 250, 292, 291, 296, 315, 330, 331, 339
Mills, Grinding Surfaces for 153
Mills, Honing 125
Mills, Saw 107, 114
Mills, Spice 219
Mills, Sugar 24, 234 (2), 290
Mills, Sugar Cane 2, 174, 219
Mills, Tones, Balancing 134
Mills, Tones, Bush for 322
Mills, Tones, Dressing 183, 207
Mills, Tones, Dressing 346
Mills, Tones, Handing 2
Mills, Tones, Trans-staff for Facing 218
Miner, Meat 234
Mining Machine, Coal 67
Mixer Box 133
Molds for Casting 299
Molds for Forming Artificial Teeth 296
Molds for Steel Castings 283
Molding Machine 222
Moldings, Bursling 292
Moldings, Cutting Curved 299
Moldings, Enameling 235
Moldings, Operating Rotary Cutters for 297
Moldings, Laying Metal Leaf on 296
Moldings, Preparing for Picture Frames 251
Money Boxes for Stages 236
Monuments, Sepulchral 227
Mop and Brush 51
Mop Handles 143
Mop Head 197
Mortising Machine 275
Mortising Machine, Reversing the Chisel in 51
Motion, Conveying 100 (2), 256, 292, 339
Motion, Transmitted 74, 133, 290
Motor, Water 219, 292
Mowing Machine 51, 146, 291, 337
Musical Instruments 346
Musical Instruments, Reed 90
Musical Instruments, Wind 90
Musquito net 251
- N**
Nail Heads, Plate 197
Nail Machine 112
Nails, Wrought 197
Needles, Sewing 90
Needles for Knitting Machines 53
Needle Case and Box 219
Needle Threader 197
Needle Wrenches 261
Nut Blanks 24
Nut Crankers 314, 330
Nut Machine 25, 50, 136
Nut and Washer Machine 199
Nuts, Preventing Unscrewing 26
- O**
Oakum, Tarring 196
Odometer 191, 242
Oil Cans for Lubricating 274
Oil Cloths, Printing 293
Oils, Coal 58, 174, 191
Oils, Pyroscopic 142
Ordinance, Chamber for 293
Ordinance, Loading 234
Ore Crusher 316
Organs 122, 290
Organs, Bakers 36, 192 (2), 193, 292
Organs for Cooling Castings 292
Organs, Heating by Steam 24
- P**
Padlock 75, 90
Pails 197
Pails, Scrubbing 197
Paint Composition 59
Pans, Bread (Design) 4
Pans, Egg 297
- Pans, Milk 251**
Paper, Apparatus for Wetting 83
Paper, Apparatus for Coloring 27
Paper, Drying 339
Paper Feeder for Printing Presses 27, 82, 92
Paper-Folding Machine 191 (3), 266
Paperhangings, Turning the Edges of 43, 199
Paper, Marking and Ornamenting 243
Paper, Making from Reeds 218
Paper, Making from Wood, 43, 185
Paper, Machine for Addressing 10, 28, 318, 290, 346
Paper, Manufacturing 346
Paper and Paper Pulp 205
Paper, Rendering Incompressible 82
Patterns for Car Wheels 296
Pavements, Iron 53, 142, 183, 191, 199, 226, 227
Pavements, Sidewalk 11
Pavements, Street 166
Peach Cutting and Stoning Apparatus 234
Pearl Jewelry, Connecting 290
Peat for Composting 291
Peg Machine 90, 153, 266, 267, 375
Pegging Jacks 134
Pegging Machines 27, 290, 267, 291 (2)
Pen, Fountain 63, 83
Penholder, 53, 195, 266, 291
Pen-Wiper and Paper Weight 227
Pencil Case 297
Pencil Sharpener 42
Pencil, Composition for 330
Pendulum for Clocks 143
Pessaries 211
Pestles for Cleaning Clothes 143
Photographs, Instrument for Enlarging 242
Photographs on Wood 190
Piano Fortes 219, 296, 322, 346
Piano Fortes, Pedal Attachment for 75
Piano Fortes, Arrangement of Keyboards for 314
Piano Legs 339
Pick Handle 299
Piers for Breakwaters 274
Pie-Steeking Machine 19
Pin, Shield 74
Pipes, Clay 17, 323
Pipes, Composition for Lining 167
Pipes, Drain 253
Pipes, Waterproof Cement 322
Pipes, Metallic 233
Pipes, Colling Metal 92
Piston Packing 35, 43, 296
Pistol, Burglar's Alarm 339
Pitcher, Ice 53, 297, 298
Plane, Bench 306
Plane, Hand 306
Plane Iron, Securing to Stocks 2
Plane Stock, Bench 233
Planes, Scoring Bits in 339
Planes for Irregular Surfaces 42
Planing Machine 43
Planing Machine, Rotary 234, 299
Planing Machine, Adjusting Knives in 299
Planing Machine, Feed Device for 315
Planing Machine, Hand 315
Planing Cutter, Rotary 51
Plant Protector 206
Pliers 19
Plows 10, 34, 35, 92 (2), 74 (2), 93, 133, 135, 196, 174, 210, 212, 219, 227, 290, 274, 275, 306 (4), 307, 346
Plows, Grain 191
Plows, Hillsides 2, 307
Plows, Mole 18, 107, 151, 196, 242, 250, 260, 275, 293
Plows, Snow 293
Plows, Steam 42, 190
Plows, Securing the Clevis to 346
Plow Beams 210
Plow Handles, Forming, 323
Plow Press and Drill 26
Pigs for Blasting Rocks 314
Pigs for Making Bottles, 276
Polishing Machine 123
Polishing Wheel 274
Portfolio 267
Pots for Clothes' Lines 93
Pots, Tea and Coffee 123
Potato Digger, 10, 166, 218, 251, 307
Potato Planter 315
Power, Applying 275
Power, Accumulating and Transmitting 239
Press, Mechanical 34
Press, Cam 125
Press, Hand Printing 75 (2)
Press, Hydraulic 174, 293
Press for Embossing Velvets, &c. 74
Press, Lithographic Printing 151
Press, Printing and Numbering 10
Press, Printing Automatic Grippers for 276
Press, Punching and Stamping 299
Press, Seal 210
Press, Sugar Cane 346
Press, Self-Acting 391
Presses, Cheese 58, 191, 242, 250
Presses, Cotton 2, 66, 107, 182, 236, 227, 251, 290, 293, 314 (2) 351
Presses Printing 19, 32 (2), 91, 106, 142, 190, 251, 276, 292, 299, 300, 339
Presses, Tobacco 23, 299, 330
Pressing Machine for Tobacco 331
Pressing Machine, Cotton 234
Printing Process 193
Printers, Constructing 339
Printers, 3, 10, 43, 53, 82, 91, 107, 114, 124, 142 (2), 161, 174, 210, 212 (2), 227, 232, 266, 275, 315, 323
Propellers, Connecting with Steam Engines 67
Propellers for Lifeboats 134
Propeller and Steering Apparatus 142
Propeller, Hand 246
Projectile for Fire-arms 274
Projectile for Killing Whales 346
Protector 290
Pulley, Friction 232
Pumps (26 (2), 51, 106 (2), 107, 175, 182, 210, 216 (2), 242, 266 (2), 267, 274, 276, 282, 298, 307, 314, 315
Pumps, Cattle 196, 167, 190
Pumps, Centrifugal 59
Pumps, Chain 339
Pumps, Cylinders and Pistons for 51
Pump Gearing 330
Pumps, Operating 67
Pumps, Rotary 23, 85, 123, 174, 226, 290
Pump Boxes 290, 306
Punch and Awl Combined 173
Punching and Cutting Iron 156
Punching Metal 190
Punching Railroad Bars 199
Pyrites, Treating 154
- R**
Rack for Holding Match Cards 51
Radiators, Steam 123
Rad, Life 106
Rails, Railroad 67, 91, 124, 264, 290
Rails, Railroad Connecting and Supporting 290
Rails, Splice of 123, 219
- Railroads, Constructing of 291**
Railroads, Street 306
Railing, Iron 50, 143
Rakes, Hay 43, 45 (2), 234
Rakes, Hay 43, 114 (2), 130, 151, 166, 318 (2), 219, 226, 300, 323, 346
Raking Machine 290
Raking Attachment for Harvesters 19, 38, 58, 74, 125, 307
Raking and Binding Attachment for Harvesters 19
Ramrods, Wormer for 234
Rangers, (Design) 123
Ranges, Cooking 150, 267, 292
Reaping Machines 135
Reaping Machines, Binder for 10, 90
Refrigerators 67, 74, 95, 190, 191, 230, 266, 291, 331
Registers, 190
Register for Sheets of Paper 226, 227
Register and Folder for Sheets of Paper 226
Registers, Omnibus 339, 346
Register for Railroad Cars 290
Register, Time 304
Registers, Time, Operating Index of 330
Registers, Ventilating 164
Register for Gas 234, 330, 331
Regulators, Steam Boiler 234
Regulators for Time-keepers 291
Regulator, Steam Pressure 246
Resins, Preparation of 153
Retorts, Coal Oil 153, 183, 199, 290, 251, 323, 299, 330
Retorts, Gas 143, 153, 232, 314
Retorts Gas, Joints for 270
Rice Cleaners 124
Rice Machine 67
Rice, Polishing 296
Riddles, Wire 65
Roasters 206
Roasting Horse 199
Roller for Cattle Printing 43
Roller for Pressing Water from Clothes 153
Rollers, Electro-plated 275
Rollers, Field 339
Roller and Bullet Machine 190
Rolls, Cementing 311
Rolls, Metallic 199
Rolling Machine 35
Roofing, Attaching Iron 275
Roofing Composition and Cement 26, 67, 124, 153, 218, 294, 299, 315, 323
Rope Machine 267 (2), 290
Rope, Machine for Opening 339
Rudders for Lead Pencils 267
Rudders for Yachts 75
Rudders, Supporting the Backs of 314
Ruffs, Printing 167
Ruling Machine 10, 226
- S**
Saccharine Juice, Defecating and Clarifying 199
Saddle Trees, 93, 153
Saddles, Elastic 150, 351
Saddles, Ash and Garbage 106
" " " " proof 183
" " " " Iron 10
Sails of Vessels 323
Sails Reefing 167, 196, 266, 290, 323, 346
Sails, Attaching Cord to 292
" " " " Cord Fastener 293
" " " " Elevator 197
" " " " Fastener 2, 74, 93, 143
" " " " Hanging Window 154
" " " " Supporter 183, 315
Sausage Machine 74
Sausage Stuffer 153, 218, 251
Saw Filer 18, 53, 292, 323, 339, 338
Saw Ganges, Preventing Vibration of 190
Saw Joints, 293
Saw-Mills 26
Saw Set 114 (2), 253
Saw Shafts, Rocker Boxes for 250
Saw Set 246
Saw Teeth, Cutting and Setting 175, 243
Saws, Attaching the Spreader to 2
Saws, Circular, Deflecting Plates for 43
Saws, Getting Circular 158
Saws, Gin, Filing, 298
Saws, Grinding and Polishing, 182, 183, 234, 235
Saws, Hanging 174
Saws, Reciprocating 183, 210, 295
Sawing Machines 15, 53, 160, 190, 218, 266
Sawing Machine, Feed for 211
Sawing Machine, Felly 98
Sawing Machine Stone 35, 150
Sawing Beveled Surfaces, 314, 339
Sawing Machine, Form 174
Scales, Grain 153
Scales, Platform 114, 182, 238, 323 (2), 330
Scales, Weighing, 314, 322
Scissors, 165, 134
Scraper, Cotton 42, 226, 290
Scraper, Dirt 275
Scraper, Coat 251
Screws (Design) 3
Screws, Coal 323
Screws, Shaving the Heads of 183
Screw Cutters 19, 53, 143, 323
Screw Cutters, Chuck for 333
Screw Dies, 330
Screw Heads, Dressing 151
Screw Machines 276 (4)
Screw Plate 210
Screws, Burning Threads on 199
Screws, Die for Cutting, 74, 191
Screws, Molding Female, 226
Screws, Nipping Heads of 274
Screws, Tap for Cutting 74
Screws, Threading 274
Screws, Wood 90, 251, 246
Scraper Machine 66
Seythe Blades 10
Seythe Snaths, 242
Seals, Metallic, 314
Sealing Preserve Jar 90, 151
Seaming Machines, Metal 50, 380
Seats, Carriage 123
Seats, Carriage Attaching Rails to 283
Seats, Folding 263
Seals for Churches, Schools, &c. 323
Seed Drills, 2, 25, 43, 191, 307
Seed Planters 3, 10, 90, 106, 114, 142, 150, 166, 218 (2), 227, 251, 306, 307, 323 (2), 330
Seed Planters, Cotton 2, 236, 274
Seed, Sowing Hay 90
Seeding Machines 2 (2), 3 (2), 11, 34, 51, 58 (2), 74 (2), 75, 106 (2), 107, 124 (2), 142, 166, 167, 218, 226, 227, 294, 323 (2), 296, 270, 274, 275, 294, 291, 306, 314 (2), 315, 331, 346 (2)
Seeding Machines, Arms of 190
Separators, Fiber 31
Separators for Smut Machines 223
Separators, Grain 4, 65, 74, 154, 210, 226, 274, 307, 315 (2)
Separators, Grain Shoes for 222
Separators, Stone 306
Sewing Machines, Clamp for 337
Sewing Machines, Closet for 143
Sewing Machines, Hemming Guides for 2, 218, 323
Sewing Machines 2 (2), 10, 11 (2), 19 (2), 27, 42 (4), 43 (2), 50 (3), 51 (2), 52, 67, 73, 82 (2), 98 (2), 106 (2), 107, 114 (2), 122 (2), 150, 151, 174, 183, 185, 190, 236, 238, 274, 290, 291, 298, 314 (4), 315 (2), 322, 330, 338, 346
Sewing Machines, (Design) 230, 240
Sewing Machines, Oiling the Thread of 2
Sewing Machines, Regulating Tension of 3
Shade Supporter for Lamps 123
Shades, Lamp 298
Shafts, Carriage 306
Shafts, Convertible 10
Shafting, Hanger and Boxes for 35
Shears, 2 (2), 26, 145, 291
Shears for Cutting Metal 83
Shearing Machine, Sheep 226
Sheep, Apparatus for Holding 106
Shell for Ordnance 51
Shells, Corn 24, 107, 150, 151, 159, 191, 251, 297, 292 (2), 391
Shields for Boots and Shoes 323
Shields, Photographic 58, 106
Shingle Machines 18, 35, 50, 90, 153, 153, 213, 242, 253, 298
Shingle Machines, Clamping the Bolt in 322
Shingle Machines, Operating the Knife in 251
Shingles 124
Shingles, Jointing 233
Shingles, Manufacturing from the Log 11, 267
Shingles, Sawing from the Bolt 338
Shingles, Sawing 306
Shipbuilding 306
Shirred Goods, Manufacturing 63
Shirt Bosom Folders 83
Shirts, Drafting, 134
Shirt Stuffs, Fastening for 2, 242, 274
Shoe Horns 174
Shot, Manufacture of 227
Shot and Shell, Rotating 266
Shovels, Fire (Design), 51
Shovels, Grain 306
Shovels, Sifting 150
Shutter Fasteners, 166
Shutter Operators 2, 274
Shuttles for Weaving Cloth 249
Shuttles, Weavers' 107
Sifters, Coal or Ash 10, 226
Sifters, Firemen's 299
Signals, Fog 42
Signals, Pyrotechnic 267, 270
Signals, Transmitting Magnetic on Railroads, 43
Sink, Water-tight 330
Sinp, Charging Apparatus, 267
Sizing for Colored Papers, 153
Skates, 191, 198 (2), 219, 275, 282, 294
Skate Fastening 260 (2), 292 (2), 306
Skate Iron 27
Skirt Hoop 100
Skirts, Hoop 15, 53 (2), 82, 107, 142, 190, 298
Skirts, Hoop Buckles for 135
Skirts, Hoop Clamps for 3
Skirts, Hoop Eivet Fastening for 26
Skirts, Hoop Sticks for 43, 50, 134
Skirting Material 18
Skimming Apparatus for Water in Steam Boilers 243
Slats, Blind 153
Slates, Preparing and Mounting 250
Slats, Running Gear of 246
Separator, Ore 246
Sign-Boards, Fastening Letters on 346
Slicer, Meat 267
Slaughtering Apparatus 219
Smoke-stacks of Locomotives, Removing Sparks from 2
Smoke-stacks of Locomotive Engine Houses 298
Smoking Tube 74
Smut Machine 26, 135, 150, 219, 274, 322, 339
Smut Mills 174, 251
Soap, 314
Soap, Manufacture of 123
Soap, Machine for Cutting 123
Soap, Resin 267
Soda Water Apparatus 153, 174
Soda Frames 166
Soles of Boots and Shoes, Cutting out 190, 267, 306, 323 (2)
Soles of Boots and Shoes, Chamfering 275
Soles of Boots and Shoes, Channel-ling and Edging 323
Soles of Boots and Shoes, India-rubber 266
Soles of Boots and Shoes, Molding 90
Soles of Boots and Shoes, Smoothing 298
Soles of Boots and Shoes, Water-proof 323
Soldering Machine 74
Sorting Machine for Silk, &c. 26
Souds, Ascertaining the direction of 163 (2)
Sounding Apparatus, Deep Sea 190, 283
Spading Machine 51, 150, 190, 290
Spark Arrestor 45, 190, 275
Spark Extinguisher 254
Spectacles 150
Spectacle Frames 153
Speed, Register for Railroad Trains, 191
Speed, Mechanism for Varying 323
Spermatic Rings, 183
Spindles for Torsion Spinning 114
Spinning Flyers 299
Spinning Frames, Ring Traveler, 115
Spinning Machines, Drawing Frames for 314
Spinning Machines, Top Rollers for 2
Spinning Machine Carriage Tops, Cleaning, 338
Spinning Flyers 246
Spintia, Extension 66
Spintia, Surgical 314
Splitter, Wood 175, 293
Spoon Machine 60, 150, 166
Spoon Shave 191, 306
Spoons, Tensioning 191, 219
Spoon Machine 90
Springs, Air 297
Springs, as a Motive Power 224
Springs, Binding and Setting 210
Springs, Car 74, 122, 198, 199, 290, 330
Springs, Carriage 218
Springs, Door, 142, 136 (2), 190, 293
Springs, India-rubber, 33
Springs for Supporting Window Sash 331
Springs, Tempering Car 314
Springs, Tempering Steel 219
Springs, Truss 167
Square, Upholstery 36, 381
Square, Framing 158
Square, Joiners' Adjusting 55
Stacking Agricultural Products 210
Stair Pad 51
Stalk-Cutter 276
Stalls for Horses on Ships 216
Stand for embroidering or Sewing 35
Stand, Hat and Cane (Design) 91
Stand, Apparatus 12
Starch, Manufacture of 148
- Statuette of "Clay" (Design) 93**
Stave Cutter 53, 114
Stave Jointer 53, 210, 267
Stave Machine, Rotary 234
Stave Machine, Chopping Block for 260
Stave Machine, Drawing Sawdust from 234
Staves, Riving from the Block 190, 293, 315
Steam, Superheating 307
Steamers, Ocean 67 (3), 267
Steel, Manufacturing 74, 167, 190, 219
Steels for Sharpening Knives 307
Steering Apparatus 142, 226, 234, 295, 270, 290, 339
Stoves (Design) 346
Stove Plates (Design) 346 (2)
Switch, Railroad 246
Stencils 122
Stereoscopes 234
Stereoscopic Apparatus 174, 188, 211, 296, 339
Stereoscopic Cases 219, 274
Stereoscopic Plates 210
Stirrups, 50, 274
Stitches, Single thread 307
Stone-Breaking Machine 93
Stone Cutter 153
Stone-Dressing Machine 61
Stone-Holding Machine 19
Stop, Window 67
Stopper for Glass Bottles 53
Stoves, 74, 83, 114, 122 (2), 134, 175, 142, 175, 182, 190, 194, 290, 251 (2), 276 (2), 283 (2), 290 (2), 307 (2), 323, 330, 331, 339
Stoves (Design) 3, 11 (2), 27, 42, 75, 82, 91, 99, 118, 123, 151 (2), 153, 167, 153, 243 (2), 276, 284, 291, 299, 315, 339
Stoves, Coal 10 (2), 151, 166
Stoves, Cooking 18, 50, 67, 98, 114, 167, 226, 227, 243, 293, 307, 314, 315
Stoves, Flues of 11
Stoves for Railroad Cars 243
Stoves, Franklin 150
Stoves, Gas 122, 242
Stoves, Plates for Boiler Holes of 331
Stoves, Steam 145
Stove Covers 242, 274
Stove Covers, Molding 210
Stove Linings 10, 43
Stove Pipes 323
Stove Plates (Design) 270 (2), 370
Stove Polish Mixer and Scraper 290
Straw-Carriers 98
Straw-Cutters 74 (2), 90, 107, 123, 210, 311, 304 (2), 314 (2), 323, 330
Straps, Attaching to Boot Legs 270
Straps, Razor 175
Stump Extractor, 142, 153, 191, 260, 293
Sugar Cane, Stripping and Cutting 223
Sugar, Manufacturing 51, 153
Sugar, Cleaning 43
Sugar Crushing and Mixing 330
Sulphur, Precipitated 219
Sulphurets, Treating 27
Sun Shades 29
Surfaces, Varnishing and Protecting 190
Surveyor's Instruments 150, 190
Swags, Dental 242
Swags, Composition 123
Sweeping Machine, Street 50, 167
Switch, Railroad 35, 42, 66, 190, 306, 315
Switching Cars from one Track to Another 299
Sword, Hanging 74
Syringing Apparatus 166
- T**
Tables, Bread-making 235
Tables, Dining 66
Tables, Extension 114, 227, 266
Tables, Folding 123
Tables, Invalid 218
Tablets, Cast-Metal (Design) 67
Tackle 27
Tank, Steam Water 43
Tanning 266
Tanning Apparatus 43, 239
Tanning Composition 123
Tanning Process 50, 174, 250, 333
Tapering Machine 274
Tarring Rope Yarns 98
Tee-pots 27
Tea Sets (Design) 291
Teeth, Artificial Piles for Securing 330
Telescopical Magnets 35, 151, 175
Telegraph Instruments 90
Telegraph Insulators 12
Telegraph, Railway 159
Telegraph Messages, Sending and Receiving at Once 2
Tempering and Molding Mastic Material 246
Tenoning Machine 18
Thermometer for Steam Boilers 283
Thills, Attaching to Vehicles 166
Threads, Gaging 274
Threshing Machines 74, 99, 174, 276, 323
Threshing Machines, Riddles for 35
Threshing Machines, Straw-carriers of 2
Ticket Holders 43
Tickets, Printing Railroad 246
Tile Machine 246
Tiles, Connecting Metallic 82
Tiller Rope Protector 67
Tins, Plating 143
Tin Foil, Manufacture of 218
Tires, Metallic, for Boots and Shoes 115
Tire, Bending 251
Tire, Rolling 251
Tire, Unsetting 3, 314
Tobacco Stems, Coloring and Curing 106
Tobacco, Squeezing and Straightening 198
Tongs, Coal 90
Tongs, Ice 199
Tongs, Pipe 106
Tools, for Manufacturing Rubber Goods 43
Tools for Chamfering Leather Straps 74
Tools for Cutting Key Seats in Wheels and Pulleys 106
Tools, Plating 143
Tools, Manufacturing 199
Tools for Cutting Metal 250
Tools for Forming Lugs in the Mouths of Bottles 275
Tops, Spinning 346
Toys, Elastic 159
Toys, Rocking 314
Trace Fasteners 3, 143, 267
Trade Marks (Design) 43
Trade Marks, Stamping on Cloth 43
Trap, Animal 11, 42 (2), 74, 90, 290
Trap, Fish 166, 226
Trap, Fly 11, 42, 183, 190, 219, 251
Trap, Rat 306
Trap, Roach 43
Trap, Fly 24
Transit Instrument 66
Treadle Stand 211
Treecing Sticks 278
Troughs, Wooden 123
Trucks for Locomotives 74
Trucks, Raising Railroad 323
Trunks 236
- Trunks, Life-Preserving 143**
Truss for Roofs, Bridges, &c. 339
Truss Pads 26, 50
Trusses, Belt 175
Trusses, Hernial 274, 306
Tubes, Speaking, for Ships 234
Tuning Key Board 346
Tunings Paper in Wood 185
Tuyere, Blacksmiths' 82, 98, 314
Twist Regulator in Throacic Frames 191
Twisting Fibrous Substances 175
Type Case 267
Typographer 142
Type Script (Design) 91
- Q**
Quarrying Machine 292
- U**
Umbrellas 2, 68, 98, 267
Umbrella Rings 150
Umbrella Frames 82, 106, 167
Umbrella Fastenings 198
- Y**
Yoke Ring Attachments for Ox Carts 293
Yokes, for Ship's Rudder Posts 236
Yokes, Ox 3, 106, 222
- V**
Valves, Butterfly 296
Valves, Combination 19
Valves, Cut-Off 42, 53, 106, 134, (3), 198
Valve 346
Valve Gear 219, 299
Valve Gear for Oscillating Engines 123, 174, 297
Valve, Governor 10, 123, 226
Valve and Governor Combined 13
Valve for Gas Meters 114, 515
Valves, Operating 10
Valves, Pressure and Vacuum 19
Valves of Pumping Engines 150
Valves, Rotary 26
Valves, Slide 183
Valves, Steam-Engine 42, 106, (2), 107, 153, 138, (3), 166, 174, 191, 366, 275, 282, 291, 399
Valves, Steam Trap 11, 106
Valves, Tubular Elastic 370
Vapor Apparatus, Hydro Carbon 330
Vault Light 90, 183
Vault Light, Frames for 54
Vegetable Cutter and Coffee Mill 90
Vehicles, Attaching Horses to 266
Vehicles, Attaching Thills to 274
Vehicles, Guide Attachment for 274
Venerer Cutter 26
Ventilator, Car 198, 207
Ventilator, Pump 57
Ventilators 246
Ventilating Car Houses 246
Ventilating Houses 167
Ventilating Window for Cars 167
Vessels for Holding Liquids 91
Vessels, Construction of 218, 275
Vessels, Hulls of 175
Vessels, Central Board for 90, 218
Vessels, Raising 19
Vessels, Launching 19
Vessels, Jib-boom for 306
Vessels, Rig of 34, 322
Vests, Life-Preserving 83
Viola, Tail Pieces for 339
Vice, Gas-fitting 74
Vice, Photographic Plate 175, 183
Vulcanized Gum, Detaching Paper from 153
- W**
Wadding, Folding and Cutting 291
Wagon, Ambulance 34
Wagon, Dumping 236
Wagon, Sail 255
Walls, Building under Water 15
Walking on the Water, Apparatus for 143
Warp Dresser Guides 13
Warp Dresser Guides, Molds for Making 18
Warp, Dressing and Sizing 135
Warts, Cooling 57
Washboards 90 (2), 166
Washer, Coal 126
Washing Machines 3, 18 (2), 36, 42 (2), 66 (3), 67, 114 (2), 142, 150, 153 (2), 174, 175 (4), 194 (2), 199, 218, 219, 224, 236, 307, 292, 323, 324, 290, 299, 315, 322, 330, 338, 339
Washing Machine 346
Watches 106
Watch Springs, Measuring Strength of 246
Watches, Stopping 191
Watches, Securing Springs of 153
Watch Cases 90, 114, 210, 298
Watch Chains 254
Watch Faces 125
Watch Guards (Design) 307
Watch Springs, Equalizing the Tension of 342
Water, Distilling Salt 43
Water, Discharging from Floating Dry Docks 183
Water, Drawing 191
Water, Device for Raising 225, 227, 339, 389
Water, Elevating by Combustion 67
Water Conductor for Cisterns 306
Weather Strips 243
Weather Strips 243
Webbing, Manufacturing 121
Wells, Apparatus for Boring 93
Wharves, Constructing 218
Wheels, Cars 24, 82, 198
Wheels, Carriage 283
Wheels, Fiddle 58, 66, 167, 190, 242, 318, 328
Wheels, Fr. 114, Arranging Buckets on 291
Wheels, Locomotive, Chilling Rims

